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COMMISSION OF INQUIRY INTO THE
USE OF DRUGS AND BANNED PRACTICES
INTENDED TO INCREASE ATHLETIC PERFORMANCE

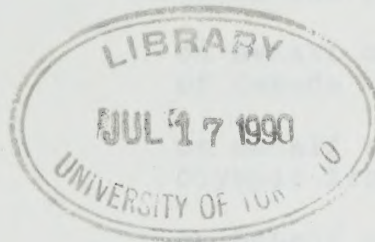
B E F O R E:

THE HONOURABLE MR. JUSTICE CHARLES LEONARD DUBIN

HEARING HELD AT 1235 BAY STREET,
2nd FLOOR, TORONTO, ONTARIO,
ON THURSDAY, AUGUST 3, 1989

VOLUME 69

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R. ARMSTRONG, Q.C. Ms. K. CHOWN	on behalf of the Commission
R. BOURQUE	on behalf of the Canadian Track and Field Association
J. DePENCIER	on behalf of the Government of Canada
R. McCREATH	On behalf of the Canadian Olympic Association
A. PRATT	on behalf of Charles Francis
D. SOOKRAM	on behalf of Dr. M. G. Astaphan

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THE COMMISSIONER: Mr. Armstrong?

MR. ARMSTRONG: Thank you, Mr.

Commissioner.

5 MR. ARMSTRONG:

Q. Yesterday, Professor Donike, you mentioned that it was through the IOC lab testing development that the A and B sample procedure arose. I just wanted to ask you one thing about the A and B sample.
10 I assume that since the A and B sample are both from the same specimen of urine, that if the analysis is done correctly then the results in the B sample should be identical to the A sample?

A. Yes, sir, you can assume this because
15 this is one specimen normally divided in two parts, and you cannot expect a different result.

THE COMMISSIONER: Is the B test the same?
Do you go through the same procedure?

THE WITNESS: Normally, we are going
20 through the same procedure, and in the rules of the Medical Commission of the IOC, also we state that the B analysis has to be performed in the same laboratory. This rule was established long ago because we wanted to avoid difficulties in interpreting results which may occur when
25 you have two different laboratories set up. This rule was

established as early as 1972.

THE COMMISSIONER: Are the same technicians that do the B sample the same people that do the actual technical work?

5 THE WITNESS: Under the rules of the Medical Commission of the IOC, there is made one statement, a statement which I personally feel today is outdated, and this says that the second sample should be analyzed by different laboratory staff.

10 THE COMMISSIONER: We had evidence of that. Is that the practice?

THE WITNESS: This is the practice, especially at the Olympic Games, but also when a B sample will be analyzed, the laboratory people and also the
15 supervising, the international federation, will take care so that this paragraph is followed, because as you know, there are a lot of challenges. Most of the challenges today are not directed against the analysis, against analytical results. But if the procedures have been
20 followed step by step, these are in most cases challenges we observe.

THE COMMISSIONER: But on the technical aspect, I understand that. People object to the way the sample is collected, and so forth. If you get a positive
25 finding on, say an A sample at an Olympic Games, and you

go through the B sample procedure, I'm not clear now. Are there other technicians that do the B sample, or is it the same?

THE WITNESS: No, there will be other

5 technicians. When you are going through the list of people involved in Seoul in the laboratory, there are about 50, as far as I remember. This means that you will find some technicians where it is clear and can be stated that they have not been involved at the prior analysis
10 and as of the A sample.

THE COMMISSIONER: I take it that is the technical work. What about the diagnosis? Who reads the report and decides what it says? The same as the one who did the A sample?

15 THE WITNESS: I would say there are different persons at the B sample, because the head of the laboratory naturally would be the same. You cannot change the head of the laboratory.

THE COMMISSIONER: But other people are
20 reviewing it?

THE WITNESS: But other people are reviewing it at the stage of the B sample. There is, in addition, the member of the Medical Commission of the IOC, who is responsible for all steps taking place at the
25 occasion of the B sample. In addition, there is also, if

wanted, the expert of choice of the athlete involved or the team involved.

THE COMMISSIONER: I see. Carry on, Mr. Armstrong.

5 THE WITNESS: But on the other hand, maybe I can go further. My personal opinion is that today, with the available analytical techniques, the demand that other technicians should perform the B sample is outdated.

THE COMMISSIONER: You don't favour that?

10 THE WITNESS: The analytical techniques, they are constructed by themselves that the results will be documented in the form of either a chromatogram printout or even in indicative form on the computer, let's say the storage or database of a computer, and these
15 results are open to external review. The question of interpretation, after my experience, is not a critical one.

THE COMMISSIONER: So your view is that it is not necessary to have different technicians?

20 THE WITNESS: Yes.

THE COMMISSIONER: Because anybody can read the results?

THE WITNESS: Because these results are objective and they are reviewable. It is different to
25 have techniques which are performed in clinical analysis

where you have a one-step reaction, putting together two
our three reagents and you make a reading on a photometer.
This is quite different. There you have a reading which
never can be controlled, or there are a lot of other
5 difficulties.

THE COMMISSIONER: That would be more
subjective than objective?

THE WITNESS: I would not say this is
subjective, but it's not reviewable because you have a
10 reading, you note it, and then you make your conclusions,
but this is reviewable.

THE COMMISSIONER: I understand. Go ahead,
Mr. Armstrong.

15 MR. ARMSTRONG:

Q. Just one other followup question. How
often in your experience in the analyzing of samples at
the international level has it occurred that indeed there
has been a difference between the A and B sample?

20 A. In the past 10, 12 years, I remember
only a few cases, maybe three or four.

Q. I see. All right, then, going to the
setup in Seoul, if I can, I take it from everything that
we have heard, that it goes without question that the
25 laboratory in Seoul went through the normal accreditation

process and was accredited as an IOC lab for the games in Seoul?

A. Yes, this was done approximately one year before the Olympic Games, the end of August '87.

5 Q. All right. I take it, from what you said yesterday, that it had some kind of temporary accreditation for the Seoul games under your direct supervision and that it performed urinalysis for the specimens taken at the Asian Games in 1986?

10 A. Yes. We took the occasion of the Asian Games to prepare the laboratory for '88 as a lot of -- the whole organization was tested in '86.

Q. All right. For the Seoul games in 1988, who was in charge of the laboratory?

15 A. It was Dr. Han who was the overall director.

Q. Is that Dr. Han, H-A-N?

A. H-A-N, yes. The technical director, it was Dr. Park.

20 Q. Dr. Park?

A. Yes. Then they had a setup of senior chemists, six.

Q. Right.

A. Under these senior chemists worked
25 about 40 junior chemists who did the analytical work.

Q. I should know this but I don't, so I'm going to ask you. Was the Seoul games the first Olympics that you tested for Stanazolol?

A. I do not recall this. We have in
5 Cologne the method for detecting Stanazolol in '79. It was used on a very small case only in Moscow, because at that time the demand of the Medical Commission of the IOC, the requirement was to test by radioimmunoassay.

THE COMMISSIONER: By what, I'm sorry?

10 THE WITNESS: By radioimmunoassay, a technique by the way, developed by Professor Brooks. And only the IAAF asked for screening by GS-MC, and this was done on a limited amount of samples. At that time, the procedure, as it was developed in Cologne, was also used
15 but without success. No positive case was found. In the following years, we developed this method. It was ready in '83, '84. It was also distributed to Los Angeles, but I don't recall if they really had a proper test for Stanazolol. I was unable to contact Dr. Catlin.

20 MR. ARMSTRONG:

Q. All right. Then the test that was used or procedure that was used for the detection of Stanazolol was then a procedure developed in your lab at Cologne and
25 employed by the Seoul lab in 1988?

A. Yes.

Q. Then also the various technicians, I take it, had received some training from you and your staff at the Cologne lab?

5 A. Yes, there were several visits, especially of the senior chemist, to Cologne for several weeks' stay and in addition we went to Seoul to train them.

10 Q. And I wanted to ask you a few questions about the doping control stations themselves at Seoul. How many were there, approximately, for the Olympics, and how were they deployed or set up?

A. I am a little bit confused. I do not understand your question. Can you repeat?

15 THE COMMISSIONER: There is some debate as to what a doping control station exactly is, as you know, whether it is the waiting room or the other room.

MR. ARMSTRONG: Well, I was using it in its broadest sense.

20

MR. ARMSTRONG:

Q. There was a doping control station or a place where they collected the specimens, as I understand it, at each competition site?

25 A. I'm sorry, I misunderstood your

question because we were dealing with the laboratory.

The sample collection procedure has been performed following the request of the Medical Commission of the IOC and following also the practice as it was used in other Olympic Games previously. The demand is that in each competition site, there is a dope control station. The dope control station should ideally be divided into rooms, one room we call a waiting room and a second room only where one athlete normally will be present and where the sample-taking procedure, the delivering of the specimen will take place, but also completing the forms.

Q. We have heard that at the main stadium where the athletic events took place that there was a doping control station there, and I understand you are familiar with that doping control station. Can you just take a moment to explain to us who the personnel were in general terms in charge of and working at the doping control station for athletics?

A. In general terms, there is the head of the dope control station. In this case, it was a medical doctor, a Korean one, and the necessary staff -- I do not recall, as I was once in this dope control station, how many staff was available, but I guess at least four to five persons of different sex so that men and females can be observed during the producing of the specimen.

Then in addition, there are security personnel which will be at the entrance door and to check the credentials of the people, the accreditation cards. For additional authorized people like the members of the Medical Commission of the IOC, they is an additional pass. The security at the Seoul Olympic Games, not only at the dope control station was very strict, and I can tell, out of my own experience, that especially also in this dope constraint, dope control station in the track and field station, it was more than strict. I went, for example, on Sunday to this station --

Q. That would be the day following the 100 meter final?

A. It was the day following the 100 meters, and when the results came up in the laboratory, I had my racing cycle at the laboratory, and I decided to have a little bit of a workout. I went by cycle to this stadium, and on my way I wanted to say hello to one of the people who was attending this dope control station on behalf of the IAAF, Dr. Hoeppepner. I must tell you I had my accreditation card, and I had also the regular card permitting me to go in. I had difficulties because I was not in the proper suit.

THE COMMISSIONER: They probably thought you were one of the athletes, doctor.

THE WITNESS: It was necessary for me. At my age and my size, I'm not very similar to an athlete.

THE COMMISSIONER: I would never admit that.

5 THE WITNESS: And I had difficulties to penetrate there. So the day after the complaints came, I wondered why.

MR. ARMSTRONG: Of course I suppose in fairness, there might have been a little more excitement on the day that Ben Johnson was there than on the day that Professor Donike was there?

10 THE WITNESS: I was not expected, and true, I'm not so famous.

15 MR. ARMSTRONG:

Q. In any event, let me just ask you this. Do I understand that at each doping control station, the IOC Medical Commission designated a particular person to be there to oversee the operation in addition to the supervisor assigned by the Korean committee?

20 A. Yes. Maybe I should explain here a little bit the policy of the Medical Commission of the IOC. As a member, our policy is to supervise each dope control station by one member of the Medical Commission of the IOC. In Los Angeles, we had a coverage somewhere

25

between 90 and 95 percent. In Calgary, we realized, due to the fact that the new commission, the Coordination Commission, is now a commission that we have enough members to achieve a 100 percent coverage, and the same coverage we had in Seoul.

The other reason why we had such a high coverage, we decided to increase the security that the seals to the so-called endopacks should be under the control of the IOC. This was a special batch prepared for the Olympic Games in Calgary and a special batch prepared to the Olympic Games in Seoul. They were completely under the control of one member of the Medical Commission of the IOC, having the records, and each member who was designed to observe one control station received the necessary amount of seals the day before the event and some in reserve.

A. And we had to bring them back. And we kept track of all the seals.

So, this was indispensable. One member of the Medical Commission of IOC had to be there.

5 An additional measure of the security, but also a measure of creating confidence, was that for Calgary and also for Seoul, it was not unique for Seoul, the Medical Commission of the IOC invited a member of the medical delegation of the Medical Commission of the international federations to be present at the dope
10 control station.

Q. So, in the doping control station then for track and field, there would have been a designated representative of the IOC Medical Commission plus a
15 designated representative of the IAAF?

A. Yes.

Q. And in athletics in Seoul, at least on the day that Mr. Ben Johnson was tested, we have heard here, and I take it you would confirm it, that Professor
20 Ljungqvist was the designated representative of the IOC Medical Commission, and Dr. Hoepfner of East Germany or the German Democratic Republic was the designated representative of the IAAF?

A. Yes, correct.

25 Q. Then I wanted to move along to the test

results of Ben Johnson. And before we actually file the results, let me just ask you this: When did you first become aware that there was a possibility of a positive result on Mr. Johnson's A sample?

5 A. I must add here I got aware early in the afternoon on Sunday the 25th that there was a positive coming up with Stanazolol. But at that time, I didn't know that it was Ben Johnson's sample as it was only a coded sample. And from the beginning for me it was the
10 sample 24-66; 66 is a number which you can recall very easily.

Q. All right. Well, some of us can.

A. Pardon.

Q. Some can. All right. So, when you
15 heard that there was -- early in the afternoon of Sunday the 25th of September, that there was a possibility of a positive finding for Stanazolol, at that point did you become directly involved?

A. No. At that date I was in charge --

20 THE COMMISSIONER: Did he know it was for Stanazolol then?

THE WITNESS: Pardon?

MR. ARMSTRONG: Yes, that's what he said.

THE COMMISSIONER: You said you knew it was
25 for Stanazolol?

THE WITNESS: Yes, okay.

THE COMMISSIONER: I am sorry, I didn't hear.

THE WITNESS: Well, let me put in other words. Normally, the Medical Commission or the subcommission will observe the laboratory on a rotary basis.

MR. ARMSTRONG:

Q. Yes.

A. At that time we were five members. It is part of the internationalization of the dope control. And by chance I was responsible on Sunday the 25th of the laboratory.

So, I went to the laboratory to check the screening procedures and saw the results coming up. Then I asked the people what did you do for confirmation if the positive result would show up. The necessary additional tests are initiated.

In principle, these tests will include to take another aliquot from the same A bottle proceeded and --

THE COMMISSIONER: I am sorry. I understand you were advised at what we have called at the screening process first; is that right?

THE WITNESS: Yes, it was.

THE COMMISSIONER: What Dr. Dugal described
as the screening process?

THE WITNESS: Yes.

5 THE COMMISSIONER: That's when you got in
to it?

THE WITNESS: Yes. Then the laboratory has
to perform a confirmation process.

THE COMMISSIONER: Right.

10 THE WITNESS: Identification process which
will lead to the conclusion that this or that substance
respectively its metabolite or metabolites are present.
And in this case, they worked the samples up and provided
mass spectro data.

15

MR. ARMSTRONG:

Q. As you indicated, it just so happened
on Sunday the 25th that you were the IOC subcommission --
IOC Medical Commission subcommission member who was
20 assigned to the laboratory. And I take it then from what
you have said that each of Professors Beckett,
Clausnitzer, Dugal, Semenov and yourself would rotate in a
supervisory role through the laboratory during the course
of the Games?

25

A. Yes.

Q. Did you stay through the process then for what I would call the confirmation of the A sample --

A. No, no.

Q. -- or did you just simply --

5 A. No, I do not think that it is necessary to stay constantly in a laboratory. I told you I took my right and when I came back later on I controlled the samples and recommended to report it as soon as possible to the Chairman of the Medical Commission of IOC.

10 This happened, I don't recall when, somewhere between 8 and 10 p.m.

Q. All right. And then as I understand it the procedure was at 10 o'clock each night -- was there a meeting of the full IOC Medical Commission or simply a
15 meeting of the subcommission with Prince de Merode?

A. No, it was a full meeting, a meeting of the full Commission.

To explain, this meeting of the full Commissions are normally scheduled 8 o'clock in the
20 morning maybe for one hour. And then the delegates have to leave for the site of events. And another meeting is scheduled for 10 p.m. because then most of the events are over and also most of the samples have been collected.

Q. And then were you present at the
25 regular 10 p.m. meeting on Sunday the 25th?

A. Yes.

Q. And was it at that meeting that the results of the A sample on specimen 24-66 were presented to the Commission?

5 A. Yes. During the course of this meeting, Dr. Park presented the result. And as far as I recall, most of the members of the subcommission had a look at the paper work he presented, the chromatograms and mass spectra.

10 The next step was that Prince de Merode ask for the envelope which was done during the course of the meeting. And maybe about midnight or a little bit later he opened himself secretly the envelope because only he has access to the code. And at the end of the meeting, he
15 informed some members of the subcommission about the result, not the full Commission.

Q. Yes.

THE COMMISSIONER: And he identified the athlete?

20 THE WITNESS: Pardon?

THE COMMISSIONER: He then identified the athlete?

THE WITNESS: Yes, he identified first for himself. I understand that he saw the importance of this
25 case and delayed it until the normal meeting of the

Medical Commission of IOC was finished.

He called Professor Beckett, who was in charge of the laboratory next day, and asked him to chair the B analysis. And in addition, he asked me, as an analytical expert, to be present for the analytical part of the B sample.

THE COMMISSIONER: I see.

MR. ARMSTRONG:

Q. So, at about what time was it then that Ben Johnson's name became known, and to whom did it become known?

A. As far as I recall, it was the Chairman, Prince de Merode; Professor Beckett; myself; Dr. Dugal was informed; and naturally his secretary, who had to write the letter to the Canadian delegation.

Q. When you say his secretary, that's the secretary of Prince de Merode?

A. Of Prince de Merode, Jane Gatehouse.

Q. I see. So, then we have heard during the course of the evidence here from more than one witness that you were present at the laboratory the next morning at 10 o'clock when the various Canadian representatives including Dr. --

THE COMMISSIONER: Stanish was there.

MR. ARMSTRONG:

Q. -- Stanish and Mr. Francis and Mr. Lyon. And then I believe Ben Johnson himself showed up. You were present when they came to start the opening of the B sample and that whole process?

A. Yes, this is correct. Maybe I should mention here I learned out of the transcript that some of the Canadian delegation misunderstood this hearing before opening the B sample.

The policy of the Medical Commission of IOC since 1972 is that the team concerned will be informed there is a break of the rules. We do not name the substance.

And at this hearing or conversation before, we want to investigate who is involved, not only the athlete, we know he is involved it is his urine, but also the entourage. And then we want also to know which medicamentation has been given to the athlete, not only two or three days prior to event, but also which treatment, which medical treatment has been performed some weeks before.

And apparently, we were informed that the medical treatment of Mr. Johnson was not in the hand and not controlled by the Canadian physicians, team physicians, but controlled by an outsider, Dr. Astaphan.

The next step was that the Canadian delegation, also asking the trainer, came up with some kind, some names of treatment. And as this was unclear to us, Professor Beckett asked that more information will be presented especially the medicaments they claimed Mr. Johnson had used.

So, we made a small break and we were -- well, I would say surprised at Mr. Johnson himself appeared after 30 or 40 minutes presenting a bag and presenting the medicaments in question and the list of medical treatment.

THE COMMISSIONER: That's been filed; Dr. Astaphan has supplied that.

THE WITNESS: Yes.

THE COMMISSIONER: We have that as an exhibit.

THE WITNESS: Yes, okay, I know this; I have not yet seen this exhibit, but I know this is here.

We went on and when we had checked as far as it was possible the composition of this material presented to us, Professor Beckett asked Dr. Park to present his analytical result: Stanazolol.

And in the course of this conversation, I asked myself first Mr. Johnson then Mr. Francis "You know what Stanazolol is?" I got the answer "No, we never heard

this word." The next I ask, "okay, if you do not know Stanozolol, what is the generic name? Please, you will know Winstrol or Stromba?" "No, we never heard this word." And then for me personally the questions were
5 finished, you know, because --

THE COMMISSIONER: That was the end of the questioning?

THE WITNESS: Yes, because I expected well-known trainer knows first what is Stanozolol, and
10 second, what is Stromba, and the third Winstrol.

As you have experienced later, they knew it very well.

THE COMMISSIONER: All right. Well, let's -- what transpired then.

15 MR. ARMSTRONG:

Q. All right. Then let me take a moment with you, Professor Donike, to actually file the test results.

20 They are, Mr. Commissioner, divided in to certain procedures. And I think we will do --

THE COMMISSIONER: Are they the same as we had analyzed ourselves? Is that the same material?

MR. ARMSTRONG: Yes.

25 THE COMMISSIONER: All right. I mean

that's the same material that we have already been
supplied by Seoul?

MR. ARMSTRONG: Yes.

5 THE COMMISSIONER: It has not been an
exhibit yet, I understand that.

MR. ARMSTRONG: No, no, it hasn't been an
exhibit yet. We have received this from really from
Professor -- well, we have received it from the IOC
Medical Commission, but I think by and large with the
10 assistance of Professor Donike.

THE COMMISSIONER: Right.

MR. ARMSTRONG: And there are A through E
parts to this exhibit.

THE COMMISSIONER: All right.

15 MR. ARMSTRONG: And the Registrar has
copies, and you, sir, I believe should have copies of this
in front of you.

THE COMMISSIONER: Are you going to make it
all the one exhibit, Mr. Armstrong?

20 MR. ARMSTRONG: Yes. What is the Exhibit
No.?

THE REGISTRAR: It will be 220.

MR. ARMSTRONG: 220. What I propose to
mark as 220A the printout that sets out screening
25 procedures one through three which were described by

Professor Dugal during the course of his evidence.

MR. ARMSTRONG:

Q. And perhaps, Professor Donike, you can
5 just capsulize it for us. Screening procedures one
through three were for the purpose of detecting what
substances?

A. Stimulants and narcotics.

Q. And the results in Mr. Ben Johnson's
10 case were negative for stimulants and narcotics?

A. For all three screening procedures the
results were negative.

MR. ARMSTRONG: So, that then would be --

THE REGISTRAR: Mr. Armstrong, what does
15 that look like?

MR. ARMSTRONG: I thought you had that.
Maybe Mr. Nunn could just come over and make sure that
this is what it looks like. That's it, you have got it.

THE REGISTRAR: That is the right one.

MR. ARMSTRONG: Yes. I am sorry what is
20 the number?

THE REGISTRAR: It will be 220A.

--- EXHIBIT NO. 220A: Printout setting out screening
25 procedures one through three.

MR. ARMSTRONG: All right. Then I propose
as 220B to file the A sample results on the first steroid
screening procedure that again was illustrated by
Professor Dugal during the course of his evidence two days
5 ago.

And as I understand it, Professor Donike,
the first steroid procedure is the procedure that -- well,
I better let you describe it because I will get it wrong.

What does the first steroid procedure in
10 capsule form attempt to detect?

15

20

25

A. The screening procedure for free steroids, this means part of the anabolic steroids are excreted free in a non-conjugated fraction, and substances like Stanozolol are excreted in these free fractions.

5 MR. ARMSTRONG: There are a group of documents that Mr. Nunn will identify to the Registrar and you have, sir, in front of you, and I think are identified. I'd ask that the steroid screening procedure for the A sample for the free fraction steroids be Exhibit
10 220B.

THE COMMISSIONER: All right, thank you.

THE WITNESS: Might I interrupt?

MR. ARMSTRONG: Yes.

15 THE WITNESS: This bunch of paper includes also the identification analysis which was performed on the second aliquot of the urine late in the afternoon, including the mass spectro. So this should be named not only "screening" but also identification performed on
sample 24-066.

20 MR. ARMSTRONG: Thank you. Just let me look at this to further identify Exhibit 220B. You can see that on the first page there is the date, the 25th of September, 1988, and the time on this top sheet is 6:48
a.m.

25

--- EXHIBIT NO. 220B: FIRST SCREENING PROCEDURE FOR THE
'A' SAMPLE FOR THE FREE FRACTION
STEROIDS DATED SEPTEMBER 25, 1988,
6:48 A.M.

5

MR. ARMSTRONG: Then I propose, Mr.
Commissioner, to file three pages which relate again to
the A sample.

THE COMMISSIONER: Confirmation?

10

MR. ARMSTRONG:

Q. These are what I understand to be the
results for the second steroid procedure, which perhaps
again Professor Donike you might help us explain in proper
terms exactly what this is?

15

A. This is correct. This is a screening
procedure for anabolic steroids designed to detect
conjugated metabolites and the conjugates of endogenous
steroids. This is a so-called conjugated fraction.

20

MR. ARMSTRONG: These three pages can be
identified by the top page which has the date September
25th, 1988, on it and the time is 2:06 p.m. Exhibit 220C,
please.

THE REGISTRAR: 220 C.

25

--- EXHIBIT NO. 220C: SECOND SCREENING PROCEDURE DATED
SEPTEMBER 25, 1988, 2:06 P.M.

MR. ARMSTRONG: Then I propose, Mr.
5 Commissioner, to file a group of documents which begin
with the date the 26th of September, 1988, showing the
time of 1:51 a.m.

MR. ARMSTRONG:

10 Q. I would ask Professor Donike to
identify what this group of documents represents, please.

A. These were tests which have been
performed on two additional aliquots of sample A with the
goal to get clearer mass spectro of the Stanazolol
15 metabolites.

THE COMMISSIONER: This is still on the A
sample?

THE WITNESS: Still of the A sample. There
was enough urine provided to do so.

20 MR. ARMSTRONG: Then, Mr. Commissioner, as
I indicated, I'd ask that those papers be marked as
Exhibit 220D.

--- EXHIBIT NO. 220D: SCREENING PROCEDURE DATED
25 SEPTEMBER 26, 1988, 1:51 A.M.

MR. ARMSTRONG:

Q. Then finally on the test results for Ben Johnson in Seoul, there is a final group of --

5 THE COMMISSIONER: 26th September, 11:56 a.m., is that the one?

MR. ARMSTRONG: 26th of September, 1988, 11:56.

10 MR. ARMSTRONG:

Q. Professor Donike, can you just for our assistance describe what this group of documents relates to?

15 A. These documents contain all the analysis performed on the 26th of September under the supervision of the Medical Commission of the IOC -- this means under my supervision -- to establish that Stanozolol metabolites are present also in the B sample.

20 MR. ARMSTRONG: May that then, sir, be Exhibit 220E.

--- EXHIBIT NO. 220E: SCREENING PROCEDURE DATED
SEPTEMBER 26, 1988, 11:56 A.M.

25 MR. ARMSTRONG: Then what I'm going to ask

Professor Donike to do is to take a few minutes, and I think he's going to do this through the use of slides that he has, simply to illustrate, I hope in a fairly elementary fashion, what these various papers indicate and how indeed it was determined that Mr. Johnson had a positive test for Stanozolol. I think we are at that point where -- do you want the lights out now, Professor?

THE WITNESS: Yeah, okay, but maybe you will allow that I correct you a little bit?

MR. ARMSTRONG: You can correct me a lot.

THE WITNESS: No, a little bit. I want to present a slide show for the second issue which was mentioned in connection with the positive case. It is the steroid profile.

MR. ARMSTRONG: All right.

THE WITNESS: I'm not prepared to present slides of these results.

MR. ARMSTRONG: All right.

THE WITNESS: So this will be clear. This is in connection with the steroid profile.

THE COMMISSIONER: Let's deal with this first, then.

MR. ARMSTRONG: I want to then deal with Exhibit 220 first.

MR. ARMSTRONG:

Q. Do we in Exhibit 220 indeed find that there is conclusive evidence of the presence of the metabolites of Stanozolol leading to the conclusion that Johnson had Stanozolol in his system at the time he
5 competed in the 100 meters on September 24th, 1988?

A. I can only repeat what I explained earlier at the meetings of the Medical Commission of the IOC. Without reasonable doubt, the metabolites of
10 Stanozolol, the 3'-hydroxy-stanozolol and the 3'-epistanozolol was present in A and B sample.

Q. All right. Now could you just for our assistance show us, for the purpose of identification, in the A sample results where we look to find on the
15 chromatogram the metabolites?

THE COMMISSIONER: We've made a private study of this, Mr. Armstrong, as you recall.

MR. ARMSTRONG: Yes, there is no question about it, but we might as well just have him identify it.

20 THE COMMISSIONER: What document are we looking at now?

THE WITNESS: In the sheet? Let's start with --

THE COMMISSIONER: What date?

25 THE WITNESS: Let's start the date, the

25th of September, '88, 6:48 a.m.

MR. ARMSTRONG: The very first sheet in Exhibit 220B.

THE WITNESS: You will find windows where
5 the headline will be in the second row. It's on the middle of the second page.

THE COMMISSIONER: What time are we at now? September the 25th, what time?

MR. ARMSTRONG: 6:48 a.m. It's the very
10 first page in Exhibit 220 B.

THE WITNESS: It's an historical document.

THE COMMISSIONER: It is indeed. All right, I have it now.

THE WITNESS: There you will find in the
15 middle of the page marked two windows of the computer printout with STA, the abbreviation for Stanazolol.

THE COMMISSIONER: I have it now, thank you.

THE WITNESS: You will mark there 1 slash
2. 1 stands for metabolite one; 2 stands for metabolite
20 two. Within the appropriate time windows, you will find that there are signals in the ion traces, 143, 669 and the 684, which are the mass spectron ions characteristic for Stanazolol metabolites, derived in the chosen way.

684, I show there, this is the molecular
25 weight. 669 is the molecular weight minus 15, and 143 is

the ion indicating the methyl substitution of the D-ring of the steroid molecule.

THE COMMISSIONER: Am I right, this is indicating a metabolite rather than the substance itself?

5 THE WITNESS: Yes, the metabolites.

THE COMMISSIONER: Because the system has changed into a metabolite but going through the urine?

THE WITNESS: Yes.

10 The rules of the Medical Commission of the IOC say that either the substance or its metabolites will be regarded as an offence to the doping rules.

THE COMMISSIONER: I understand.

MR. ARMSTRONG:

15 Q. So that's the evidence on the A sample, I take it, and what resulted was there was similar evidence on the B sample?

A. The same evidence came out --

20 THE COMMISSIONER: Does it look like the same?

THE WITNESS: When analyzing the B samples, but the printout of the computer will be slightly different because another instrument was used for confirmation.

25 THE COMMISSIONER: I see.

THE WITNESS: This is the normal routine, that the confirmation is made by a different instrument.

MR. ARMSTRONG:

5 Q. Well, just to identify the presence of those same two metabolites on the B sample, if we take the B sample documents, Exhibit 220E, and look at the second sheet in 220E with the date September 26, 1988, and the time, 3:47 p.m., I take it on this chromatogram one sees
10 the presence of these two metabolites for Stanazolol; am I correct?

A. Yes.

THE COMMISSIONER: I have something at 4:50. Was it redone again at 4:50 p.m.?

15 THE WITNESS: Yes, it was redone several times. The normal procedure is to work up the B sample, two aliquots, and then several gas chromatograph, mass spectrograms are performed.

THE COMMISSIONER: All right, thank you.

20 MR. ARMSTRONG: Now, could I have Exhibit 220E, please.

MR. ARMSTRONG:

25 Q. I'm going to ask you, Professor, to

take Exhibit 220E and the chromatogram shown at 3:47 p.m., take this red pen of mine and just mark on there, if I may ask him to do so, mark on which of those squiggly lines represents the two metabolites of Stanazolol. Can I do that? All right, why don't you just mark them metabolite 1 and 2.

THE COMMISSIONER: What document is this now?

MR. ARMSTRONG: This is Exhibit 220E, which is the B sample.

THE COMMISSIONER: What date? What time?

MR. ARMSTRONG: September 26, 11:56.
You've got it right there.

THE COMMISSIONER: M-1 and M-2, is that how he's marking them?

MR. ARMSTRONG: Yes, that is how he is marking them.

THE WITNESS: I am writing down also the chemical name for this metabolite, which I characterize with M-1 and M-2.

MR. ARMSTRONG:

Q. All right. Perhaps, then, you might just tell us what you've written for M-1?

A. M-1 is 3'-hydroxy-epistanazolol, and

M-2 is 3'-hydroxy-stanozolol.

Q. I take it those are the biochemical or chemical names for these two metabolites of Stanozolol?

A. This is a trivial name, Stanozolol, but we add the prefix hydroxy to characterize where during the metabolism in the liver a hydroxy group was introduced. This is the category, therefore 3'.

Q. All right. Before going to the slide presentation, I take it from what you said a few minutes ago before we asked you to identify the results that some issue in your mind, at least, arose that led you to give some consideration to the so-called endocrine profile of Ben Johnson?

A. During the discussions before the B analysis, Mr. Johnson claimed that the security in the dope control station was not as tight as it should have been and that he suspected that the guy had followed him or was in his neighbourhood, and he identified the guy as somebody out of the entourage of Carl Lewis. This originated even before the B sample was opened.

This, I would say, is the starting point of the conspiracy theory. It was brought up once more that night at the hearing of the Medical Commission and the Canadian delegation. I had in my mind to have seen the steroid profile of Ben Johnson's urine. It is the

screening procedure for B, the screening procedure for
conjugated steriods, and which is marked here as exhibit,
I believe, 4E. Am I correct? This printout of the
screening procedure -- sorry. I have it here marked as
5 4C -- sorry, 220C.

THE COMMISSIONER: That's the conjugated
fraction?

THE WITNESS: The conjugated fraction.

10 MR. ARMSTRONG:

Q. Yes?

A. We are working since years with the
steroid profile out of different reasons. For me it is
clear when I see this that the steroid profile is not
15 consistent with a normal steroid profile. The
concentrations of the endogenous steroids, androsterone,
etiocholanolone, testosterone and epitestosterone are
reduced by an order of magnitude.

THE COMMISSIONER: By what?

20 THE WITNESS: But an order of magnitude.
This means a factor of 10. You need no calculation, as I
will point out later, to immediately see this.

MR. ARMSTRONG:

25 Q. Can I just stop you for a moment.

Again, the so-called profile of the endogenous steriods is a profile of those steriods which naturally exist in a male person's body, I take it?

A. Yes.

5 Q. I take it that what you are going to tell us is that if one takes synthetic steriods exogenously, that they have the effect of suppressing the production of the natural steriods?

10 A. Yes, this is correct. It is a well-known feedback mechanism. When you add exogenous steriods, the production of the endogenous steriods will be reduced.

15 THE COMMISSIONER: Well, let's see where we are. I understand that following the completion of the B sample process and your analysis of it, I take it you said that you're satisfied beyond a reasonable doubt that it did show metabolites of Stanozolol without the profile; am I right on that?

THE WITNESS: Yes.

20 THE COMMISSIONER: Is it not because of the suggestion that somebody had sabotaged Mr. Johnson, that this sort of refreshes your memory of what the profile was; am I describing it right?

25 THE WITNESS: Yes. It was to exclude the accusation of a third party. This was the only purpose to

use at that time the steroid profile.

I presented a paper on steroid profile techniques and the possible consequences to the Medical Commission of the IOC some days prior to the Olympic Games; but this was an internal paper, and it was not the goal to present this paper 10 days before to use it during the games. But it happened that we had to use some of these results.

THE COMMISSIONER: Were you present when Mr. Johnson said he had been sabotaged by somebody from the Carl Lewis camp? Was that told to you?

THE WITNESS: Yes, this originated in the hearing which Professor Beckett chaired, and this was roughly about 11:30 on the 26th.

THE COMMISSIONER: That was at the doping control station?

THE WITNESS: The dope control station.

THE COMMISSIONER: Before you actually started the examination of the B sample?

THE WITNESS: Yes.

MR. ARMSTRONG:

Q. In fairness, the evidence we have had here, I should tell you, is that simply there was a stranger in the doping control room and that various

descriptions were given of him. The evidence we have had here didn't go quite as far as you've stated this morning, but I don't think for our purposes that need trouble us.

In any event, because of what we call the "sabotage theory" or what you now call the "conspiracy theory", because that issue arose, the possibility of a third party being involved in the Stanozolol being found in Ben Johnson's urine, you decided to examine Johnson's steroid profile as revealed by the test results?

A. Yes. I asked Dr. Park to make a rough estimation on the concentrations, the ratios we see here. With your permission, I want to illustrate now how the steroid profile can be used to make further conclusions on your urine samples coming in.

THE COMMISSIONER: On urine samples?

THE WITNESS: On urine samples.

THE COMMISSIONER: Let me ask you this, before you go into that. I think I asked Dr. Dugal that it wasn't clear. Let's assume that you find no metabolites of a banned substance. In that sense, the result is negative. Would the profile by itself indicate there had been the use of these substances even though it was no longer in the body? Is that what you are going to discuss with us?

THE WITNESS: A little bit the consequences

out of this, yes. But you should understand that this is indirect proof of the use of anabolic steroids. When we are finding the parent compound or its metabolites, we have the direct proof.

5 THE COMMISSIONER: Let's assume you don't find the metabolites. As we've heard, so many athletes have gone by for years being tested without metabolites.

10 THE WITNESS: It is an additional tool in the fight against doping, and it is my personal opinion we should make intelligent use of it.

THE COMMISSIONER: Even in the absence of finding the substance itself?

THE WITNESS: Yes, why not?

THE COMMISSIONER: Well, I'm just asking.

15 THE WITNESS: Well, if I accept biochemical laws, and one of these laws is the feedback mechanism and a knowledge of the biology of the human being, the steroid production. Why not?

20 THE COMMISSIONER: You're not asking me, are you?

THE WITNESS: No, it is a rhetorical question.

MR. ARMSTRONG:

25 Q. All right, are we ready for your slide

presentation?

A. Yes.

MR. ARMSTRONG: With the assistance of Mr. Barber, it looks like we're ready for the lighting.

5 THE COMMISSIONER: Lights out, please.

THE WITNESS: May I first draw your attention to the left slide. It is a normal computer printout of our screening procedure in Cologne. We are monitoring at this stage of the analysis for conjugated
10 steriods, some endogenous steriods like testosterone and epitestosterone which are necessary to make a decision: Endogenous testosterone, misused or not?

On the right side, upper window, you see our internal standard. We include its ME-testosterone, and
15 here we are monitoring two major metabolites of testosterone and some other endogenous steriods, which gives us a picture regarding the concentration. An indication for the concentration is the counts monitored here on the left side, Y axis, as we say, and here 400,000
20 is marked. In relation to the internal standard, we can calculate how much of these endogenous steroids within analytical error is present in the urine.

To come now to the center profile window, epitestosterone is rooted before testosterone, and
25 normally we expect here a ratio of 1 to 1. This is maybe

something premature when we discuss later T/EPIT ratios.

What you are seeing here once more, the scale --

THE COMMISSIONER: Every male person should have that ratio, normally?

5 THE WITNESS: It should be about 1.

THE COMMISSIONER: That is, if I don't take any outside steroids, I should come up with a reading like that?

THE WITNESS: Yes.

10 THE COMMISSIONER: But are we all the same? Are all men the same?

THE WITNESS: There is a little bit of variation, and we have calculated the normal range. I have slides with me to discuss in a separate lecture.

15 Here, once more, this scale indicates to us how much of these compounds are present. If you take the relation 7,000 here roughly to 400,000, you will state that the amount of these steroids, epitestosterone and testosterone, is fairly low. The concentration range is
20 the 14 nanograms per milliliter, which is not much, but here we expect 2,000 nanograms of androsterone and etiocholanolone.

25 This is, out of my experience, I would name as a normal urine, and when we are going through the sequence of these slides, taken at the same day in July

'89, this is a selection out of our normal production,
what we are observing any day, and these are cyclists,
amateur cyclists, where the use of anabolic steroids is
known to be nearly none. This is not a sport infected by
5 anabolic steroids.

You see that we have the same picture.
Left-hand upper window, relative fair amount, and once
more, if you regard this, the ratio between
CIS-Androsterone and Androsterone is roughly 1, like it is
10 for epitestosterone and testosterone. When we are going
through these pictures, they seem to be fairly well --

THE COMMISSIONER: These are all different
samples, are they?

THE WITNESS: These are all samples, 10
samples I show you from cyclists.

THE COMMISSIONER: All right.

THE WITNESS: The computer printout shows us
5 the clear picture especially in the ion trace 432 where
epitestosterone and testosterone in the middle will come
out. And this is due to the relative high concentration
indicated on the left-hand slide.

And you see this is the impression you will
10 get when you are analyzing urine samples from a population
of non-steroid users.

THE COMMISSIONER: But they are athletes as
well, though, which may be important.

THE WITNESS: Pardon?

15 THE COMMISSIONER: These are athletes, too.

THE WITNESS: Athletes. These are routine
samples taken after state race about 140-160 kilometer per
day. And these are normal urine, BDR, Bund Deutsche
Roolfohner, German Cycling Federation.

20 THE COMMISSIONER: There's been some
suggestion that a lot of hard exercise might affect the
ratio.

THE WITNESS: No. We have done a lot of
excretion studies, a lot of observations, exercise will
25 have no influence on this.

THE COMMISSIONER: All right.

THE WITNESS: Within the analytical error, these samples are always the same.

THE COMMISSIONER: What about this one?

5 THE WITNESS: Okay. We will come back to this, it is a little bit premature.

Okay. When you -- when I may summarize, when these computer printouts will come in a sequence of 25 minutes, and I am reading them, I can state these are
10 the population where the steroid profile is not influenced by anabolic steroids.

Now, let's come to the right hand. This also -- these are samples 10 we analyzed for the German Body Building Federation at the same time period.

15 Sorry. Now, I have it. It is analyzed at the same time period. This was beginning of July, here the 27th of July. And when you are looking just on the first slide, you see two deviations to the left hand which are prominent.

20 First of all, you mark that this baseline is rough. And this is rough due to the fact that the concentrations of epitestosterone and testosterone are far lower than on the left-hand slide. You see here a maximum on the scale if you take they as an indicator of 650 name
25 and there we have 5,500. It is a reduction roughly by a

factor of ten.

The same observation you can make here in the scale of Androsterone and Etiocholanolone. The overall scale of both metabolites, you know, is roughly one-tenth of this.

What we are observing here is the consequence of the feedback mechanism reduction of the endogenous production. The the computer has blown this up therefore we have this relative funny picture. But it is what you will remark when you are going for the chromatograms.

THE COMMISSIONER: All right.

THE WITNESS: Another change which we observed as early as '82, but we could not verify, is a shift in the ratio between CIS-Androsterone and Etiocholanolone. Maybe you have in your mind the ten samples I presented there. There was always equal heights here.

THE COMMISSIONER: Yes, it was very close.

THE WITNESS: And here suddenly we observe a relative low concentration of Androsterone, relative low. So, these are two typical observations, reduction, and this shift. So, let's go --

MR. ARMSTRONG:

Q. Just let me interrupt for a moment.

the right-hand slide is a member of the German Body
Building Federation?

5 A. Yes.

Q. I take it you are proceeding on the
assumption, maybe you said it and I missed it, but you are
proceeding on the assumption that the right-hand slide
represents somebody who has taken or is taking steroids?

10 A. Yes. He has taken. At the time of the
analysis, we couldn't detect any anabolic steroids, but
what we could detect, this may be is not the best
expression, deteriorated steroid spectrum.

15 When I go further, you will see here a body
builder with a relative fair concentration of
epitestosterone and testosterone and equal amounts there.
I am nearly sure he has used sometime ago, but we will
have to accept it as relative normal.

20 But now we go on. Here we see a picture
where we can hardly find any epitestosterone and any
testosterone. The shift also is here, but not so
prominent as in other examples.

Q. Just go back on that slide for a
moment, please.

25 THE COMMISSIONER: Just go back, please.

MR. ARMSTRONG: I am sorry, Mr.

Commissioner, you were going to ask a question.

THE COMMISSIONER: No, you go ahead.

5

MR. ARMSTRONG:

10

Q. When you say you can hardly find epitestosterone and testosterone I see some peaks there but that's because the scale -- you have blown this up many times. The scale is 360 compared to the scale on the --

THE COMMISSIONER: 6,500 over here.

MR. ARMSTRONG:

15

Q. -- normal one of 5,500?

A. To make a rough calculation, internal standards comes out with a intensity of about 15,000 --

THE COMMISSIONER: Perhaps it is my fault, but if you look at just the ratio, it would be quite even?

THE WITNESS: It is quite even.

20

THE COMMISSIONER: I thought the significant thing is the difference between the ratio of the epitestosterone and testosterone?

THE WITNESS: No, the ratio of epitestosterone to testosterone --

25

THE COMMISSIONER: Right. In that case --

THE WITNESS: -- to the best of our knowledge is only influenced when I inject testosterone --

THE COMMISSIONER: Right?

5 THE WITNESS: -- or I make some other manipulations, what we express in our brochure many places.

THE COMMISSIONER: But in this case they are both way down from the normal.

THE WITNESS: Pardon?

10 THE COMMISSIONER: In this case they are both way down, not just the ratio between the two --

THE WITNESS: The ratio will be relative normal, but what will not be normal will be the calculation.

15 THE COMMISSIONER: I understand.

THE WITNESS: There we calculate roughly a concentration of 40 nanograms per minute of urine, here my estimation will be .2, .3 nanograms.

THE COMMISSIONER: On the zero?

20 THE WITNESS: This is two orders of magnitude, a factor 100. And this is once more not normal.

25 Here you see another example. A relative large shift in the urine -- sorry, in the ratio between Androsterone and Etiocholanolone in the left small window.

And you see here a dumping road of the epitestosterone-testosterone trace, once more reduced by a factor of 100 compared to the normal --

THE COMMISSIONER: I see.

5 THE WITNESS: -- state. And once more here influenced but not too much, relative fair height. We have maybe to accept this as relative normal, but the ratio also indicates there was something.

10 Here is a body builder completely normal. Also in this area exists people performing their sports without anabolic steroids.

15 Here once more a relative strong influence spectrum. And here once more an endocrine profile very prominent as this shift and also the reduction is substantial. You have only an indication of 700 in the maximum.

THE COMMISSIONER: I see. It is similar.

20 THE WITNESS: Okay. You see this is an additional information we get out of the screening procedure for anabolic steroids, the endogenous steroid profile. We can monitor and we can include even some more metabolites of the endogenous steroids, which of the results of this show also in the same direction.

25 An influence of anabolic steroids to this spectrum and now when we come back and we go further, here

is the urine of this famous sample 24-66 re-analyzed in Cologne under our conditions.

THE COMMISSIONER: What's the one on the left?

5 THE WITNESS: Pardon?

THE COMMISSIONER: What is the one on the left here?

10 THE WITNESS: The left? This is our standard for endogenous steroids. This will give you roughly an impression --

THE COMMISSIONER: No, but you started 2,600. Others you started at 4,000.

15 THE WITNESS: Yes, 2,600 is this ratio. These are different analytical conditions to the analytical conditions we had in July. And this is the reason why we introduced the internal standard. And you see also that the scale for internal standard is lower, is only 2,000 roughly than in the July experiment.

20 MR. ARMSTRONG:

Q. Well, could I just stop. I just have completely lost you. I thought those early slides were showing levels of natural steroids --

A. Yes.

25 Q. Epitestosterone-testosterone and those

other ones that I can't pronounce at levels up around 4 and 5,000. And that that was your norm. And now you are showing us what you say is a normal steroid profile on a scale that has as its upper limit 2,600?

5 A. Okay. These are the analytical variations which may occur in the laboratory from day to day. And when you are looking for the dates, these analysis have been run the 3rd of February, 1989. They are --

10 THE COMMISSIONER: This becomes your new standard then, is that what you are saying?

 THE WITNESS: So, you have to switch a little bit over. And this, as you correctly mention, is now our standard. And the sensitivity of the instruments on the 3rd of February '89, are by a factor of three less sensitive than we had on the last slides I showed you on July. But these are now a standard.

 And when we were going back to this, we see here a ratio one to two in CIS-Androsterone and completely depressed steroid profile as it also show in Exhibit 220C, I believe, which shows the steroid profile in Seoul.

 You have here counts 300 at the best for epitestosterone and also for testosterone. And this means compared to the amount of internal standard, it is a reduction in the endogenous production by a factor of 10

or even more.

MR. ARMSTRONG:

Q. Well, just let me see, I didn't follow
5 that. Is the epitestosterone not that peak at 7 minutes
and whatever?

A. 7.71, yes.

Q. 7.7 on the --

A. On the left side.

10 Q. No, I am looking at the right side?

A. 7.67.

Q. Is that epitestosterone?

A. Yes.

15 Q. So, the level of epitestosterone there
for Johnson --

THE COMMISSIONER: Is 450.

MR. ARMSTRONG:

20 Q. -- is not 300, it is 470 or
thereabouts?

A. Let's go exactly. It is 450, you have
to draw here the baseline somewhere in this area. You
have to go to baseline, you know. And if you take here
the baseline, it is roughly around 100. So, it is the
25 350, when we agree on this, minus 100 is 350.

Q. I see. I guess I didn't understand. I thought the baseline was the baseline of the graph?

A. The baseline of the graph is different from the baseline of the chromatogram.

5 Q. I see.

A. And here we have to take this, the analytical deviations. It is roughly here. Okay.

Q. All right. In any event, just I don't want to cut you off, but just to sum up what we are
10 looking at on the right-hand slide then is an analysis that you did or your lab did on the 3rd of February, 1989 of Ben Johnson's urine sample from Seoul. And this graph indicates, or chromatogram, indicates what you would describe as a reduced or suppressed --

15 A. Steroid spectrum.

Q. Thank you.

THE COMMISSIONER: I think you said a ratio of at least 10 to 1? You said 10 to 1?

THE WITNESS: Ten to one.

20 THE COMMISSIONER: All right. I understand.

THE WITNESS: And this was the claim we, or the Medical Commission of IOC, made in Seoul. And once more I want to repeat this was not an additional factor in
25 calling or in declaring the sample positive. It was made

to protect a third party, nothing else.

THE COMMISSIONER: All right, thank you.

MR. ARMSTRONG:

5 Q. So, then it might just be helpful just
before we recess if you can show us on Exhibit 220C where
we derive this same information. And I may just ask the
Registrar to give me a copy of 220C, and if it is
appropriate to mark it --

10 THE COMMISSIONER: It is going to be
conjugated.

MR. ARMSTRONG: -- I would ask that it be
marked.

15 THE COMMISSIONER: Are you through with the
slide presentation now, Mr. Barber? Is that through?

MR. BARBER: I am not sure.

THE COMMISSIONER: Are you through with the
slides?

20 THE WITNESS: No, not yet. I would prefer
to continue.

THE COMMISSIONER: All right.

THE WITNESS: But if you propose for
break, I can continue without interrupting this because
now there are some different --

25 MR. ARMSTRONG: This is going to be an

appropriate place for a break, but can I just ask --

THE COMMISSIONER: I am sorry, that's why I thought you wanted the light on to mark the exhibit. Put the lights on.

5 THE WITNESS: Because afterwards I wanted to explain the consequence of this.

THE COMMISSIONER: I understand.

THE WITNESS: Also in the consequences, regarding the possibility to detect the use of masking
10 agents.

THE COMMISSIONER: Right. Go ahead. All right. We will do that. Do you want to mark the --

MR. ARMSTRONG:

15 Q. Can you help us, Professor, on Exhibit 220C where we find the indication of a reduced steroid profile that you have referred to.

A. Different to the printouts, I showed here the internal standard you will find here in the left
20 upper window.

Q. Yes.

A. The trace 432 is below this internal standard window.

Q. Below that it says ion 432.00. That's
25 what you are referring to?

Q. This is what I am referring to.

Q. Yes.

A. I neglect the zeros.

Q. Yes.

5 A. And there you will find the mark ET;

this stands for epitestosterone.

Q. Yes.

A. And T for testosterone.

Q. Yes.

10 A. You will see that the baseline once more is very noisy indicating at the first inspection that there is a low concentration present.

Q. Yes.

15 A. In relation to the internal standard in the window above, we can make rough estimation without having the calibration factors available. And my estimation now will be 6,000 will be the peak height for epitestosterone -- sorry, for testosterone in the maximum. And in the upper trace, I find 25,000 for the internal
20 standard.

Q. All right.

A. So, this means roughly that they have added 40 nanograms, that the concentration is roughly reduced by a factor of one to seven. And this is a
25 concentration range. I indicated earlier a reduction one

to ten.

THE COMMISSIONER: All right, thank you.

THE WITNESS: To make a correct evaluation we have to go deep into the details.

MR. ARMSTRONG:

Q. All right. Just let me ask you this: You said the range in the standard was 25,000. The range on Johnson's urine for the testosterone was 5,000. Isn't that five times rather than seven times?

A. Five thousand and above here once more, 5,000. The baseline I have to draw it to take it to be 7,000. And the peak height is up to 12,000, the difference is 5,000.

Q. Right.

A. And here the internal standard the peak height is, when I am reading correct here, is the 34,000 minus 9,000. You know, sometimes, calculations.

Q. Twenty-five thousand?

A. Twenty-five thousand.

Q. Yes.

A. So, I am correct to say what is 25,000 divided by 5.

THE COMMISSIONER: It is five.

THE WITNESS: It is five; it is reduced by

five --

MR. ARMSTRONG:

Q. Yes.

A. -- in this instance. On the other

5 hand --

Q. What about the epitestosterone?

A. The epitestosterone seems to be lower.

It is the small peak to the left-hand side. And there I
have to take 40,000 divided by 2,000. It means a
10 reduction of 1 to 20.

Q. All right.

THE COMMISSIONER: May I ask you this,
though, the slide we see where would the base material
come for that slide you showed?

15 THE WITNESS: This was residual volume of
the B sample I asked for beginning of November '88.

THE COMMISSIONER: This is the subsequent
test actually made in your office?

THE WITNESS: Yes, in my office.

20 THE COMMISSIONER: We will come to that
later I am sure. We will take a break now.

MR. ARMSTRONG: Thank you.

--- Short recess.

25

--- Upon resuming.

MR. ARMSTRONG:

Q. All right. Just before we go in to the next series of slides, I wanted to ask you about this natural steroid profile of Johnson.

Does your expertise enable you to conclude from the analysis that was done in Seoul and the subsequent analysis that you did in Cologne in February of '89 how long Johnson may have been taking anabolic steroids?

A. No, we cannot make conclusions out of one urine sample. And I have there a slide I wanted to present to you. Maybe I will take it now.

Q. All right.

A. The steroid profile after stopping the ingestion of anabolic steroids will normalize. The endocrine system will recover. And we have here an example. It was a body builder found to be positive and he was very cooperative and provided urine samples in certain intervals. I hope I will find now.

This slide explains how the shift between Androsterone and Etiocholanolone, I take this as a measure, indicator, came to normal.

These observations were made under different analytical conditions and so I would like to draw your

attention only to the ratio from peak number one to peak number two.

And you see when I suggested this after five months is normal or has returned nearly to normality, that it takes over range of increased concentration of CIS-Androsterone in relation to Etiocholanolone several months to come back to normality. This is as we have concluded out of this and several other observations not an irreversible effect.

Q. All right. Going back to the situation that you found with Ben Johnson, let's assume for the moment that you were presented with the evidence relating to Ben Johnson's steroid profile in your laboratory, and let's assume that there was no evidence of metabolites M-1 and M-2 of Stanozolol.

So, your lab didn't on that occasion find the presence of the metabolites of Stanozolol, but found the suppressed endocrine profile of Johnson.

I take it that there is no doubt in your mind, leaving aside the rules, but there would be no doubt in your mind as an academic that your conclusion would be that the suppressed endocrine profile of Johnson is a clear indication that he had taken anabolic steroids?

A. As a scientist, I would agree, but as to a secretary of the subcommission doping and

biochemistry, I would not agree because the steroid profile is not part of the rules until now.

Q. I understand. I asked you in that example to leave the rules aside, but now that this science is available, is there any intention on the part of the IOC Medical Commission at the present time to change the rule so that in those cases where you find a suppressed endocrine profile you can in fact disqualify the athlete?

A. I have submitted my paper, as I mentioned before, to the full Commission before Seoul. We are discussing this question. I am personally discussing this question especially with federations having serious problems with anabolic steroids, and, for example, international weightlifting federation. And its Medical Commission will discuss this at its next meeting September in Athens. I am invited to --

THE COMMISSIONER: Is your study meeting with the agreement of a large scientific group or not because I understand this is quite a debatable subject that you are dealing with.

THE WITNESS: It is till now debatable because a lot -- or we have made a lot of observations based on the availability of body builder urines after the introduction of dope tests by the international federation

of body building.

THE COMMISSIONER: You have now developed a few case studies, in other words, is that right? What I call case studies.

5 THE WITNESS: They are case studies because we had until '86 available only a few cases, a few urines where this, for example, could be found and we had an indication. But now where we have available in my laboratory 400 cases of this type of urines. So, we can
10 calculate normal ranges for this population --

THE COMMISSIONER: How would you know on that example there, the very first, where you have the second month following the -- I guess that's the second month following the discontinuation of the steroid, right?

15 THE WITNESS: Yes.

THE COMMISSIONER: How would you know that is not the normal profile of this athlete?

THE WITNESS: This is a question of statistics and interpretation of the normal range you find
20 on a population where you can be sure out of all the background that the application of anabolic steroids does not play any role.

You must be very careful, and, therefore, you know we are very careful to proceed here, but we have
25 I think enough observations now to go forward --

THE COMMISSIONER: Is this ratio at all effected by say one's normal health or one's normal diet, or is this something --

THE WITNESS: Until now.

5 THE COMMISSIONER: Go ahead?

THE WITNESS: Until now we have observations from athletes. Athletes are normally healthy as we know or should be. They are normally in a certain range of age, let's say between 18 and 35, 40. So, we have not to deal with the whole population and with all the factors which may influence such a profile.

THE COMMISSIONER: They all perform a lot of exercise, too, so that would be a common factor.

15 THE WITNESS: Yes. Or maybe I should mention that we have been interested, personally, myself, years, long years before we started the analysis of anabolic steroids by gas chromatography-mass spectrometry in endogenous steroids, their metabolism, and their relation to performance. This means high work load either in training or in competition. And this have been two research branches which came together --

THE COMMISSIONER: All right.

25 THE WITNESS: -- in the years 1976-'78 when the use of anabolic steroids became broader and the substitution of anabolic steroids shortly before the event

by testosterone.

THE COMMISSIONER: Well, assuming the validity of your opinion would also indicate a use of any other drug? Why is it just anabolic steroid is going to effect this ratio?

THE WITNESS: This you must explain out of the effect of endogenous steroids. It may be testosterone or it may be anabolic steroids as testosterone relatives.

THE COMMISSIONER: I understand --

THE WITNESS: To the feedback mechanism.

THE COMMISSIONER: -- you are talking about steroids all having a testosterone base?

THE WITNESS: Yes. So, this instance, this is an outcome, it is a consequence of the influence of anabolic steroids on the endocrine feedback mechanism regulating the steroid production.

THE COMMISSIONER: All right. Thank you. Mr. Armstrong.

MR. ARMSTRONG:

Q. Now, can I just ask you this: Do the urinary metabolites of testosterone, do they come largely from the adrenal precursors?

A. From both. There are two sources for the endogenous steroids.

Q. Yes.

A. These are the gonads.

Q. The testes?

A. The testes in men.

5 Q. Yes.

A. And these are the adrenal glands in both sexes.

Q. In men what percentage come from the adrenal glands?

10 A. I don't recall, but it may be about 50 to 60 percent.

Q. Does that put any question mark around this theory that you advance if up to 50 or 60 or perhaps I suggest to you as much as 70 percent come from the adrenal glands then can you really say that it is the anabolic steroids that a person takes that account for the low profile?

15 A. Yes, with absolutely certainty. There are papers going back to 1960 describing that high doses of methandienone influence both sources of the steroid production, not only the testes, but also the adrenal glands. I have cited this paper in a paper I submitted to you which is my lecture in Monte Carlo.

20 Q. All right.

25 A. There is a source of this and this

dates back -- but these are observations made in animals but this is I think common knowledge.

THE COMMISSIONER: All right. Mr. Armstrong.

MR. ARMSTRONG:

Q. Then why don't we move along to the balance of the slides that you have.

A. Okay. If you will.

Q. Yes.

A. Steroid profile, as I have shown, give us an indication if anabolic steroids have been used, but the retrospectivity you can estimate from these pictures it will not go back to two years or five years, what would be maybe a goal, but we see that there is a certain time limit we can go back.

The retrospectivity here, and this I want to stress, is longer than the detectability of orally-applied anabolic steroids.

And there I would say we can go back in the retrospectivity by a factor of two or three. If as a lot of people working in this field agree, we can detect anabolic steroids ingested orally up to 14 days. This test will go back up to six weeks or eight weeks. So, this is one consequence --

Q. Just a minute. Isn't it more than that? It looks like it might be 12 weeks based on the top three chromatograms?

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20

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A. Okay, but this is one single observation.

Q. I understand.

A. There are individual variations, metabolism of the different persons involved, but also there are variations caused by the kind of application, orally or intramuscularly by the kind of substance applied, by the frequency and length of the application. So it will be very hard to predict from a single observation on the whole retrospectivity of such a method. This will not be scientifically sound.

Q. In any event, if we just take this one bodybuilder that is illustrated in this slide, I take it that the conclusion that you as a scientist would draw from that is that, at least looking at the third from the top chromatogram, would you say that athlete in the last three months has taken steroids?

A. Yes. I personally, you know, I would have had, as a scientist, no problems to declare this as non-normal, this as a non-normal profile with a high probability --

THE COMMISSIONER: But the third is getting pretty close.

THE WITNESS: But here I would doubt. I would say, "Okay, this at the lower end of the normal

range."

THE COMMISSIONER: All right.

THE WITNESS: I never would dare to declare
such a profile as a profile of a steroid user. But here,
5 yes. There, with absolute certainty.

MR. ARMSTRONG: All right, so then no. 1 and
no. 2. The second one is what, two-and-a-half months?

THE COMMISSIONER: Three months. The third
one is three months.

10 MR. ARMSTRONG:

Q. The third one is three months but the
second one is what?

A. Two-and-a-half months.

15 Q. You are clear at ten weeks? Eight
weeks, ten weeks?

A. Eight weeks I will be clear.

Q. Ten weeks you're clear?

A. Ten weeks, okay, I'm also clear, but --

20 Q. All right. I know that in this area,
you can't as one member of the subcommission of the IOC
Medical Commission speak on its behalf, and I'm not going
to ask you to, but as an academic and as a person
interested in this field, do you think it's likely in the
25 not too distant future that this kind of analysis will in

fact be deployed in the international sporting field?

A. I see no application to introduce this relatively soon as the proof for the anabolic steroids misuse; but I see two applications which will be possible in the near future with the agreement of the international federations involved. First, to ask for a normal steroid profile as a prerequisite to participate in certain events like world championships and other events. This is my clear proposal to some of these federations having problems with anabolic steroids. This is a change of rules which will be judged before. This will avoid such steroid misuse or will reduce it. The second is to use it especially in out-of-competition controls as an argument in educating athletes, trainers and physicians.

Q. I understand. Taking the first use you would make of it, then, in other words you could see in the future, and it would be your proposal, that if an athlete wanted to compete in the world championships or the Olympic Games, he would have to submit himself to a urinalysis which would produce what you would call a "normal steroid profile", otherwise he can't compete?

A. Look at it as again the verification which is made by a lot of international federations and by the Medical Commission of the IOC at the Olympic Games. It is also the prerequisite to participate. So coming

back to this steroid profile technique gives also an information if the urine was manipulated or not.

I would like to come now to the question of masking agents.

5 Q. Before you go to that, staying with the Ben Johnson steroid profile, did you at any time have available to you what you considered to be a normal steroid profile for Ben Johnson, or will we come to that later?

10 A. That is okay. We come later. I have a urine sample available which was taken on the 17th of August in Zurich.

15 THE COMMISSIONER: While we're here, though, perhaps can we come back to that? Let's do the masking agent.

20 THE WITNESS: If some people claim that they can beat the test, they have maybe made certain experiences. Some people thought they could beat the test by probenecid, which appeared in urine collected out of the competition by the Norwegian Federation of Sports. It had athletes training in Texas, U.S.A. These urines, part of them were diluted, and I received samples of these urines with the question: What is the method of these urines? They are looking diluted, but the laboratory
25 analyzing it first couldn't find the diuretics.

It took us three days to evaluate that an agent was present, probenecid, which will reduce the nature of acidic compounds. The conjugated fraction that we are analyzing consists of such a compound. They are acidic by nature by the conjugation. So we were able to figure it out, and in some experiments, we tried to figure out how much will be an analysis inference by the ingestion of probenecid.

Here we have the example of a volunteer being on nandrolone, nortestosterone, and we applied two grams of probenecid. If you regard first this trace, 434, the compound 3 stands for androsterone, what we know before. The compound 4, etiocholanolone. After 2.5 hours, it is reduced let's say to one-third, and after another one-and-a-half hours, 4 hours after application, it is reduced to roughly 1 to 2 percent of the original level.

THE COMMISSIONER: What is reduced?

THE WITNESS: The concentration of androsterone and etiocholanolone.

THE COMMISSIONER: I see, thank you.

THE WITNESS: We have chosen here the same scale to demonstrate visually how the concentration will go down.

MR. ARMSTRONG:

Q. So to sum up, what this slide shows is that probenecid is a very effective blocking agent for the anabolic steroids?

5 A. For steroid conjugates, for part of the steroids. It will not influence the excretion of methandienone, Dianabol or the metabolites excreted in the free fraction.

10 But coming back to this, you see here also that this change is so dominant, so spectacular that in any laboratory where the steroid profile is monitored these manipulations will be obvious. It is independent of probenecid or masking agent X or Y as you have learned here. For example, citric acid, I can assure you, will
15 not change the steroid profile in such a way, because then ingesting orange juice will also reduce the steroid profile, but this we do not observe. So in this area, a lot of claims are made.

20 Q. There are a whole lot of athletes out there right now running to a store to get some orange juice.

A. But let's come back to the history of Mr. Johnson, you know. We know out of the transcripts -- I know; I took it out of the transcripts -- injections
25 have been made the end of August. The therapy of

diuretics have been performed in the days when he stayed in Tokyo, also to eliminate something that they thought could be detected. Then at the site of the sample collection, he was handed a bottle with honey and citric acid. I asked myself what was the purpose of this. I don't know. I can't explain it to you as a biochemist. But I wonder, when I'm going further through the transcripts, where was the Golden Boy? I can assure you, the Golden Boy was not present in the urine of Ben Johnson in Seoul. We would have detected it, six grams of a compound.

THE COMMISSIONER: Well, let's get on to your direct knowledge of matters. It's for me to assess your evidence, Dr. Donike, and you are to give your testimony.

MR. ARMSTRONG:

Q. Now just to sum up on this probenecid, this work that is illustrated here that you did was as a result, I take it, of the Norwegian Weightlifting Federation having done an out-of-competition test on a number of their weightlifters who were at a school or training in Texas?

A. Yes.

Q. That was when? June of 1987 or

thereabouts?

A. No, this was May '87.

Q. So that was your first indication that athletes were using probenecid as a blocking agent?

5 A. Yes.

Q. All right.

A. I am relatively sure that if probenecid had appeared previously in my laboratory, we would have been able to detect it because these changes in the endogenous steroid profile are so prominent, and there are indications also in other screening procedures that probenecid, or let's say in this case an unknown compound is present, that it would have been very easy to find out, first, something is going on, and second, what it is.

10

15 Q. All right. I don't want to appear to rush you along, but you have a busy schedule. I'm going to rush you along a little bit so that we can get done.

So far as probenecid is concerned, for our purposes, the next significant factor, as I understand it, is that it became apparent at the Pan-American Games in Indianapolis that certain athletes had used probenecid as a masking agent for anabolic steroids; is that not so?

20

A. That is correct.

Q. Let me just stop you there before you go any further. As I understand it, after you had

25

discovered that the weightlifters of the Norwegian federation had used it when they were tested while in Texas, you indeed sent a memo around to your colleagues and said, "Look, be on the lookout for probenecid"?

5 A. Yes, so I did. I believe this is the normal process, that we warn the IOC accredited laboratories that something is going on.

 MR. ARMSTRONG: It may just be useful, from the point of view of how these things develop
10 historically, to mark as an exhibit your memorandum of June 22nd, 1987, addressed to all accredited laboratories. I would ask that this be marked as Exhibit 221, a memo from Dr. Donike dated June 22nd, 1987.

 THE COMMISSIONER: To whom?

15 MR. ARMSTRONG: Addressed to all accredited laboratories, and if I might take a moment just to read the first two paragraphs:

 "Dear Colleagues: Since years, there are rumors that urines are manipulated with some
20 pharmacological agents in such a way that the normal test for anabolic steroids and some other dope agents will turn out negative. As you remember, one reason to put diuretics on the list of banned drugs
25 was the possible manipulation of urines with

this kind of substances.

In the last weeks, we analyzed for a national sport authority six urine samples, where five turned out to be manipulated. This urine samples contained probenecid, a substance normally used as uricosuricum. But it is also known since 1951 that this substance may induce the excretion of 17-ketosteroids. "

MR. ARMSTRONG:

Q. So that was your alerting your colleagues to that situation; correct?

A. Okay, correct.

--- EXHIBIT NO. 221: MEMO DATED JUNE 22, 1987, FROM DR. DONIKE TO ALL ACCREDITED LABORATORIES.

MR. ARMSTRONG:

Q. All right. You were going to show us something else?

A. Maybe I should mention at this stage that the Medical Commission of the IOC discussed this question, I recall, end of September, beginning of October

in Moscow, and proposed to redraft the dope definition and to introduce a group masking agent. This was approved by the executive board at the December meeting. I must state that this was a very fast reaction taking into
5 consideration the normally lengthy decision-making process in international federations and authorities. We reacted, I would say also from here, very fast.

Q. All right. Just to complete the history of that, and if I can, I propose, Mr.
10 Commissioner, to mark as the next exhibit a memorandum addressed to Prince de Merode from Professor Donike dated 25th September, 1987, which outlines, I believe, the study that you have just indicated on this slide; is that correct?

15 A. Correct.

MR. ARMSTRONG: I have the full report here which I propose to mark as the exhibit and then a single page which explains the information.

THE COMMISSIONER: The number, please?

20 THE REGISTRAR: That's 222.

--- EXHIBIT NO. 222: MEMORANDUM DATED SEPTEMBER 25,
1987, FROM DR. DONIKE TO PRINCE DE
25 MERODE.

MR. ARMSTRONG: Professor Donike, you were indicating the swift action that was taken by the IOC Medical Commission in relation to this. We have an
5 excerpt from the minutes of the IOC subcommission meeting in Moscow. That's a meeting that took place in October 1987. I would propose, Mr. Commissioner, to mark that as Exhibit 223.

THE COMMISSIONER: Yes.

10 --- EXHIBIT NO. 223: EXCERPT FROM THE MINUTES OF THE IOC
SUBCOMMISSION MEETING IN MOSCOW
HELD IN OCTOBER 1987.

15 MR. ARMSTRONG:

Q. If I might just take a moment to read the excerpt from the minutes. It reads:

20 "Professor Donike reported that there had been considerable use of a masking agent called probenecid during the Pan-American Games in Indianapolis. Although not specifically a diuretic, probenecid had the effect of a diuretic in reducing the concentration of steroid conjugates and
25 could thus mask the use of any doping

agents."

Then there is a proposal as to what should be done about this and comments from both Dr. Clausnitzer and Professor Dugal. Then there is reference to what I believe must
5 have become the language of the prohibition that now exists by the IOC Medical Commission concerning the use of probenecid.

A. Yes.

Q. I take it from that excerpt that
10 unfortunately the result must have been that a number of athletes who competed in the Pan-American Games must have successfully evaded the detection of anabolic steroids by having taken probenecid?

A. As far as I know, there have been
15 reported four cases of probenecid. So this shows the extent which, when I take into consideration the total number of samples which have been analyzed, somewhere around 1,000, it is not very dramatic, I would say.

Q. Except, of course, I assume that
20 probably the four people who showed probenecid were probably medal winners, were they?

A. I cannot comment on this. The occasion
of the Pan-American Games, as well as at the occasion of the Olympic Games, you know, there will be taken some
25 samples from the medal winners and some samples by lot out

of the rest. I am not informed of the details, so I cannot comment on this. You can assume what you want, but --

5 Q. I'm not going to assume anything. Is what you are saying you don't know who the four people were who tested psitively or who showed evidence of having taken probenecid?

10 A. The responsible body is the Medical Commission of ODEPA (phon), and it's up to them to comment on this or not. It's not IOC Medical Commission matter.

THE COMMISSIONER: Well, they wouldn't be disqualified anyway.

15 THE WITNESS: Yes, okay. You will find it very hard to disqualify somebody when not yet a rule is established. This is the problem.

THE COMMISSIONER: I understand. All right, Mr. Armstrong.

MR. ARMSTRONG:

20 Q. I may come back to that later. Is there anything else on probenecid? I'm kind of anxious to move along.

A. Okay, not on probenecid.

Q. All right.

25 A. But I would like to make one remark on

the steroid profile technique. As I pointed out, we can see or we can detect if anabolic steroids have been used, even if there is no anabolic steroid present. A lot of rumors are going around about designer steroids to beat the test. Once more, I can only use this example, the reduction of the endogenous steroids. I expect a reduction not only by the normally-marketed anabolic steroids but also by the so-called "designer" drugs. You should know --

THE COMMISSIONER: The so-called what?

THE WITNESS: Designer drugs. These are drugs specially designed to beat the test.

I should mention here that when such claims are made, these people forget that during the evolution of the pharmacological properties of anabolic steroids, about let's say in the early '50s, more than 2,000 or even 3,000 modifications of the testosterone molecule have been made. The so-called "anabolic steroids" have been filtered out by certain screening procedures. So I assume, knowing the literature on this subject, that the most effective ones have been found and have been introduced by the pharmaceutical companies into therapy.

You can make modifications of any molecule to such an extent that no biological activity will remain. Once more, if somebody claims he can beat the test with a

new steroid, the first indication we will have is the reduction of the endogenous steroid profile because when it will act in the body, it will reduce the endogenous production.

5

MR. ARMSTRONG:

10

Q. But again, of course, until you bring in the rule that a reduced endogenous steroid profile will result in either a prevention of your competing in the meet or disqualification, it isn't much help. It's just like the probenecid in 1987 in Indianapolis. There went four probably medal winners -- that's an appropriate assumption, probably four medal winners -- who were taking anabolic steroids, but because they used probenecid that wasn't yet banned, although discovered, they are still walking around with their medals.

15

20

A. Please don't forget that analytical methods will indicate, not a 100 percent certainty, but they will indicate that there is an exogenous compound present. A lot of laboratories are able to go deeper in the case and evaluate the structure of this compound. Professor Dugal has shown two days ago some slides on this subject. The laboratories are not so blind as many people think they are.

25

Q. No, no, I understand, but you've just

made the flat-footed statement here that some athletes think they can beat the tests, and they can't; but here are four athletes in the Pan-American Games that beat the test. They beat the test. They are still walking around with their medals because they took probenecid, and you couldn't find or the lab didn't find the presence of anabolic steroids. So unlike Ben Johnson and others who have been disqualified, they can say with impunity that they beat the test; isn't that so?

A. Okay, accepted.

THE COMMISSIONER: Have you got another point, Mr. Armstrong?

MR. ARMSTRONG:

Q. I've got a few more, yes. I'd like to know who they were, but anyway, let's move on from the subject of --

A. No, let's come back to the last remark you made, "beat the test". If they had probenecid, you know, and they were on a relatively high concentration of anabolic steroids, they would not have beaten the test, as you can see. We have here still an indication and a possibility to identify the metabolites of nandrolone 1 and 2.

Q. The rule certainly doesn't say that you

need a relatively high concentration of anabolic steroids.
What it says is that you can't take them in whatever
quantity.

I'm in your hands on your slide
5 presentation. Have we got any more?

A. No, I have finished with this. If the
Commissioner will agree, we can come back to Zurich or
what we did in Cologne in February.

THE COMMISSIONER: Let's do that now, I
10 think. Perhaps you could introduce the subject this way,
Mr. Armstrong. Where are we going?

MR. ARMSTRONG:

Q. As was indicated by one earlier slide,
15 you obviously did some testing related to Ben Johnson on
February the 3rd, 1989. I think in response to a question
from the Commissioner, you indicated that you had some
residue of the B sample of Mr. Johnson from Seoul. First
of all, how did that arise that you personally in your lab
20 came into possession of a residue of the B sample from
Seoul of Mr. Johnson?

A. After Seoul, I left for Australia.
There was a world championship, and on the basis of
temporary accreditation of the Sydney laboratory, these
25 championships were controlled for anabolic steroids. So I

came back only at the end of October.

Coming back, I found a lot of paper on my table and there was one letter which I have to interpret as a challenge of the result of Seoul regarding another athlete. I wanted to have a look once more at this urine, but reading this letter, I didn't realize at the first moment that the expert, having reviewed the documentation from Seoul, didn't find out that these mass spectra were done in a different way. They had performed a negative chemical ionization detection technique, so we could figure out this problem.

But at the same time, I got knowledge of the new theory that Furazabol has been given and about the claims that the laboratory had mixed up Furazabol and Stanozolol. Looking into the normal chemical literature and looking at the molecular structure, this is impossible; but to be sure, I asked also in connection with this other case I had coming up, Dr. Park to check which volumes of urine of the B samples, having found positive, are there. When he reported that there have been left some 10 or 50 milliliters of Ben Johnson's urine, I asked him to send them to Cologne, naturally in agreement with Prince de Merode, the Chairman of the Medical Commission.

Then I waited some time to get the Furazabol

compound, which is not readily available on the market.
You may know that injectible forms have been withdrawn in
1980 or '82, and that the only source is a company in
Japan, Daichi, the one milligram tablets. You know this
5 history.

So it took some time. Professor Dugal
indicated in connection with our next meeting of the
subcommission that he had performed the excretion study,
and they asked him not to duplicate the work, to bring
10 with him a sample of his excretion study with the
Furazabol metabolite. This was one reason to run this
analysis he performed beginning of February.

It was not, in my eyes, an additional
confirmation of what has been found in Seoul. I told you
15 earlier there is no doubt that Stanozolol metabolites have
been identified in Seoul in A and B sample, but we wanted
to know more.

In addition, the International Athletic
Federation, the IAAF, had asked the laboratory in
20 Magglingen to go once more into the files of this --

Q. That's a Swiss IOC accredited
laboratory?

A. That's the Swiss IOC laboratory. The
head of the laboratory is Dr. Kamber -- to go once more
25 into the urine sample or the documentation. As there were

speculations that the urine of Mr. Johnson had been declared negative due to a poor detection limit, Dr. Kamber asked me to protect his institution, to run another analysis on the B sample he had available.

5 THE COMMISSIONER: From Zurich?

THE WITNESS: It was collected on the 17th of August in Zurich.

THE COMMISSIONER: I see.

10 THE WITNESS: So we did this under the observation of Dr. Dugal in my laboratory.

MR. ARMSTRONG:

15 Q. Just to sort of bracket this, the sample for August 17th, 1988, from Zurich was of course a sample taken from Ben Johnson after the much celebrated race involving Carl Lewis and him and of course others, but it was much talked about in terms of a head-to-head race between Lewis and Johnson?

20 A. Yes, okay, but I do not want to go into the competition. Here it was a clear-cut decision for me, as the chairman of the subcommission, to check what was the sensitivity or what would have been the result if the analysis of Zurich had been analyzed in Cologne.

25 These are the clear pictures I can show you. The result of Zurich is negative. Here are the results,

the screening tests by another method for Stanozolol, this time in a conjugated fraction. You see here the result of only the B sample collected in Seoul, the clear indication of the presence of 3'-hydroxy-Stanozolol. Here's the result of Zurich, and there is a standard out of our standard urine.

Here you see when you take also into consideration the traces, no detectable amount of Stanozolol. So we could conclude that the negative result of Zurich was the result of a low detection -- sorry, of a bad detection limit. Apparently you have to explain this. Ben Johnson was for a longer period of time not on anabolic steroids, as I can show you here. This was his steroid profile of Zurich, and I will declare this roughly as normal because the scale you see in the middle of the steroid profile, epitestosterone is much higher in this case than testosterone, but is fairly high. It is not this bumpy trace, and on the other hand. Also the ratio there is maybe 6 to 10.6. I would be a little bit suspicious on this, as we explained before, but it was quite normal because also the concentrations excreted are fairly high. We are in the region of 200,000 counts measured at that time, with that sensitivity.

Q. All right. Looking at the left-hand slide of Johnson in Zurich, what you are saying is that the endogenous or natural steroid profile is at such a level that you would regard as normal?

5 A. I would say it is fairly normal, yes.

Q. I know this is another subject and we are going to get to it, but on the test that is done for testosterone, as I understand it, you look at the relationship between epitestosterone and testosterone. And in a normal reading they will be roughly one to one. And I don't know whether this is the appropriate place to ask this question, but I look at Johnson's profile here on this slide on the left, and the relationship of testosterone to epitestosterone appears to be something different than one to one?

10

15

A. No, it is in this case .5 and this is in the normal variation.

Q. I see.

A. We do not know, I must insist on this, the normal steroid profile of Mr. Johnson because I never received urine prior to 1981.

20

Q. All right.

A. So, it is difficult to compare it. We can only compare this with the normal range. We have out of a lot of other observations steroid users and

25

non-steroid users.

THE COMMISSIONER: What you are indicating is that there have been steroid use between August of '88 and September of '88, right?

5 THE WITNESS: Yes.

THE COMMISSIONER: Is that what you are saying?

THE WITNESS: If I compare this with the picture we have previously seen, you know.

10 THE COMMISSIONER: Right.

THE WITNESS: You will see the difference. Same analytical conditions in Cologne. And you see here clear the difference, reduction, you know, if you take epitestosterone.

15 May be I should mention here that after my experience, the best indicator to monitor the activity of the endogenous steroid production is epitestosterone.

THE COMMISSIONER: Right.

20 THE WITNESS: If you take this 6,000 as we have said before 350, this is a reduction of nearly 1 to 20.

THE COMMISSIONER: That's between August and September?

25 THE WITNESS: Between August and September. And this picture is consistent with the claims which have

been made here, ingestion of Stanazolol, Estragol it was claimed.

THE COMMISSIONER: That's Furazabol.

THE WITNESS: Or Furazabol in quotation, you know.

THE COMMISSIONER: Right, I understand.

THE WITNESS: End of August.

MR. ARMSTRONG: All right.

THE COMMISSIONER: Thank you.

THE WITNESS: Okay.

THE COMMISSIONER: Thank you.

MR. ARMSTRONG:

Q. Going back to your analysis of the urine sample from Zurich, you were looking for the presence of Stanazolol. Was there any indication at all of the presence of Stanazolol or were you satisfied that it was a completely negative finding?

A. Yes, I was satisfied and -- I am sorry.

THE COMMISSIONER: There it is.

THE WITNESS: I can only show you this slide, you know, where we put together the windows for Stanazolol for standard, for the sample from Zurich, for the sample from Seoul. And with all my professional competence, I can only state there is not a trace of

anabolic steroids to be seen or to be proved. We tried in addition and additional aliquot with a different --

THE COMMISSIONER: Zurich just demonstrates what we have now known so clearly that you can be on
5 anabolic steroids for years and if you stop taking them in time you are going to clear.

THE WITNESS: Yes. And this is also consistent the steroid profile we are observing there with the steroid profile -- with the changes in the steroid
10 profile, we observed in the body building. Right. This is exactly what we observed. It will come back to normal after a certain delay.

THE COMMISSIONER: All right. Thank you.

THE WITNESS: Okay.

15 MR. ARMSTRONG:

Q. Then going back to the analysis that you did in relation to the residue of the B sample from Seoul, have you got a slide of that and what does that
20 show?

A. No, I am sorry, I have not a slide, but I provided the documentation. And there is included on the last pages the test for Furazabol.

THE COMMISSIONER: Well, you were here when
25 Dr. Dugal -- he have a slide of that yesterday.

THE WITNESS: Yes, but we did it on these samples.

THE COMMISSIONER: Right.

THE WITNESS: The sample 24-66 --

5 THE COMMISSIONER: I see, right. You actually tested the sample itself?

THE WITNESS: -- was tested for Furazabol and also the sample provided by Dr. Kamber from Magglingen. And the test for Furazabol was clearly
10 negative --

THE COMMISSIONER: I understand.

THE WITNESS: -- for both samples.

MR. ARMSTRONG:

15 Q. Professor Donike has provided the printout of the results in respect of the Cologne test on the B residue in Seoul. And is that the last page of that, is that Zurich?

A. Furazabol negative. It is sample
20 number 9044.

Q. All right. So, if I could ask your indulgence. I am sorry to speak to the witness without asking proper questions.

Should we mark that as an separate Exhibit
25 that last page?

A. No, I would also propose to include the page before indicating that the sample 24-66 from Seoul was also tested for Furazabol.

5 Q. No, I am going to put that, but up to there is --

A. Furazabol negative also.

Q. -- is the Seoul sample. The last page is the Zurich sample?

A. I agree, it is absolute --

10 Q. All right. Let's mark those two as separate exhibits.

A. Okay. Thank you.

MR. ARMSTRONG: Can we mark then as Exhibit 224 the series of pages that have the date 3rd of February, 1989 on them beginning with a page that says 4:42 p.m. and ending with a page of the same date saying 6:20 p.m.. Also reads on the front Excretion Study 40 milligrams Stanazolol Orally, et cetera.

20 MR. ARMSTRONG:

Q. And I believe that group of documents, Professor Donike, contains all of the work you did in connection with the B sample residue from Seoul --

A. Yes.

25 Q. -- of Ben Johnson.

All right. Then, sir, could I have
marked --

THE COMMISSIONER: What number is that,
please.

5 THE REGISTRAR: 224.

MR. ARMSTRONG: 224.

THE COMMISSIONER: Thank you.

10 --- EXHIBIT NO. 224: Series of pages dated February 3,
1989.

15 MR. ARMSTRONG: And I propose, sir, to mark
the single page that has the date 6th of February, 1989,
1:48 p.m. and has Zurich No. 9044B written on it. And
could that be marked as Exhibit 225.

THE REGISTRAR: 225.

20 --- EXHIBIT NO. 225: Single page with the date of
February 6, 1989

MR. ARMSTRONG:

Q. Okay. Now, as it turned out, how much
residue did you in fact have left from Seoul that was
delivered to you in Cologne, do you remember?

25 A. About 15 millilitres, I recall.

Q. How much residue -- I take it the same thing obtained in Zurich, you got some residues of the B sample from Zurich?

A. Yes, it was more.

5 Q. I guess you had the whole B sample from Zurich?

A. It was the whole B sample; we opened the sample in Cologne.

10 Q. Approximately how much urine was available, do you remember?

A. According to the rules, it should be at least 25 --

Q. All right.

15 A. -- I have no idea how much it was exactly.

Q. Now, do I understand that, we have not covered this yet, but Exhibit 224 as we have now marked it, the result of your lab's analysis in regard to the residue of the B sample from Seoul that you, of course, detected the metabolites of Stanazolol, but in addition to the two metabolites of Stanazolol detected by the Seoul laboratory, your laboratory in fact picked up additional metabolites of Stanazolol. Is that so?

20

A. Yes, correct. We have continued our work on the metabolism of Stanazolol and have also

25

synthesized until now three metabolites of the Stanozolol.

So, we have available reference material which stems not from urine excretion studies. And naturally we used these material to check this sample with respect to these samples and compared the mass spectrum with the synthesized material.

And you will find it in some pages below the -- on the lower end of the pages.

Q. All right. Can I just ask you this: Why was it that your lab found the additional metabolites of Stanozolol?

A. The procedure to detect anabolic steroids has been introduced in Seoul '86 as we learned in preparation of the Asian Games. And at that time and also may be a year later, it was known that the best possibility to detect in the screening mode -- in the screening procedure Stanozolol was to screen for the metabolites M-1 and M-2. And still today my laboratory we are performing the screening procedure for Stanozolol mainly in the free fraction as was performed in Seoul because the signal to noise ratio in this fraction is a little bit more favourable than in the conjugated fraction.

Q. To use the vernacular, as it were, you were geared or Seoul was geared only to pick up two

metabolites of Stanozolol where your equipment and expertise in Cologne can perform at a more perhaps sophisticated level and you picked up the additional metabolites; is that it?

5 A. Okay, yes, correct.

 Q. How many additional metabolites of Stanozolol did you discover?

 A. With the work of one of my assistants, we have discovered until now 16.

10 Q. No, no, in Ben Johnson's urine, I mean.

 A. Sorry. We checked here -- I must check it -- I think four additional in the conjugated fraction. Let's have a look on it so I am as precise as possible.

 Q. I hadn't noticed.

15 A. Pardon. It is page 12 -- sorry. Yes, thank you, it is page 16.

 Q. So, the last page of Exhibit 224.

 A. We detected five metabolites Stanozolol in the form of the conjugate. I regard this in this fraction as also a metabolite.

20

 Q. All right. So, those were five additional metabolites in addition to metabolites M-1 and M-2 that were disclosed on the other exhibit from Seoul that we looked at?

25 A. Please, now, I would --

THE COMMISSIONER: It includes them.

THE WITNESS: I would like to modify this because one of these metabolites is identical with the metabolite found in the free fraction, the
5 3'-hydroxy-stanozolol. This metabolite is found in both fractions.

So, we found or we demonstrated the presence of four additional metabolites. Okay.

THE COMMISSIONER: To summarize, then, as a
10 result of the test that you did in Cologne, you confirmed the earlier finding. You said you had no doubt about it, but you confirmed it in any event with additional material?

THE WITNESS: We -- okay --

15 THE COMMISSIONER: But also excluded the suggestion it could have be Furazabol?

THE WITNESS: Yes. And this was the main purpose of the test in Cologne to exclude the suggestion of Furazabol. And the second, which is for me not an
20 understandable claim, and the second purpose was to recheck the sample of Zurich to be sure that their detection limit compared to ours.

THE COMMISSIONER: All right.

25

MR. ARMSTRONG:

Q. Just put another way, what you were acting on I guess in relation to the study concerning Furazabol, you received some information that there was a rumour that had surfaced in Canada that before this Inquiry's hearing started even, that Johnson had taken Furazabol and he had not taken Stanazolol. So, that picked up your curiosity and that's why you proceeded with the blessing of the IOC Medical Commission?

A. With your permission I would like to make a comment to this.

Q. All right. Sorry, I didn't think it was terribly controversial.

A. Yes. Also to show or to explain why I feel it was necessary to go back into the urine of Zurich and once more going back into the urine of Seoul.

Claiming that an IOC accredited laboratory in the situation of Olympic Games under the supervision of the subcommission on biochemistry on doping would have made a mistake to confuse Furazabol with Stanazolol would blow up the whole system.

THE COMMISSIONER: If it was right?

THE WITNESS: And this is naturally what I cannot accept because these claims they have no substance at all. It -- I cannot accept that anybody is trying to

find excuse for really deplorable situation going into the textbooks of pharmacology looking for a substance related in structure at the first view and is claiming then, oh, they made a mistake.

5 THE COMMISSIONER: Well, I don't think -- that's not for you to comment on, Doctor.

Anything else, Mr. Armstrong?

MR. ARMSTRONG: Not before lunch. I propose --

10 THE COMMISSIONER: We will adjourn to two o'clock.

MR. ARMSTRONG: -- that we take a short lunch hour.

15 --- Luncheon recess.

--- Upon resuming.

THE COMMISSIONER: Mr. Armstrong.

20 MR. ARMSTRONG: Thank you, Mr. Commissioner.

MR. ARMSTRONG:

25 Q. Returning briefly to this subject of the endogenous steroid profile as you have described it

and has also been referred to as the natural steroid profile steroid or the endocrine profile, have you been involved in any way in making a study of the test results from Seoul related to the male athletes involving the endogenous steroid profile?

A. Yes, we have started the evaluation of the data which have been collected at the screening procedures to get information how many urine samples are influenced by the ingestion of anabolic steroids and did not test positive in the analytical screening procedures.

This way -- this evaluation started beginning this year in February, exactly to name the date. And we are still in the process of calculating first normal ranges out of the data available in our institute based on the results we had in the last two years.

The second step, the next step, will be to evaluate the data from Seoul. And this process will take some time.

THE COMMISSIONER: Are you testing the residue of the urine samples from Seoul?

THE WITNESS: No, this is not an analysis of the urine sample. It is an analysis of the -- a statistical analysis --

THE COMMISSIONER: It is already there.

THE WITNESS: -- of the ratios of

Androsterone to Etiocholone.

THE COMMISSIONER: From the tests that were performed?

5 THE WITNESS: From the tests that have been performed. And you have an example of this in the exhibit showing the endocrine profile of urine sample 24-66.

THE COMMISSIONER: Right.

THE WITNESS: On the conjugated fraction.

10 THE COMMISSIONER: Are you making a similar comparison with other athletes who competed in Seoul who were tested?

THE WITNESS: Yes, but in unanimous form.

THE COMMISSIONER: All right.

MR. ARMSTRONG: So --sorry.

15 THE COMMISSIONER: Go ahead.

MR. ARMSTRONG:

Q. So, what were there, approximately 1,100 male athletes in Seoul?

20 A. As far as I recall, there are --

Q. Or 1,100 male athletes who were tested?

A. Yes, okay, this is a correct interpretation, about 1,100. I don't recall the exact number.

25 Q. What you then have is what I would call

the computer printout or all of this written material that we have been seeing, for example, in relation to Ben Johnson. You have that in relation to the 1,100 male athletes who were tested in Seoul?

5 A. No, extract out of this. Extract out of this, the calculated ratio.

 THE COMMISSIONER: Right.

 MR. ARMSTRONG: I see.

10 THE WITNESS: Not the whole material. It would be a tonne of paper.

 MR. ARMSTRONG:

15 Q. Now, again, I had thought both from Professor Dugal's evidence and again from your evidence this morning that you could simply pick up this information, look at it, read it, and come to the conclusion fairly quickly as you must have done on the night of September 26th in regard to Ben Johnson that the endocrine profiles are suppressed or not suppressed. Is
20 all of that information not now collated in regard to the 1,100 other athletes?

25 A. It is not so easy to have deal with one sample. You have finished first the calculation and second the judgment, the expertise on it, relative to Seoul. If you have 1,150 you have to evaluate statistical

data. You have to check. And this is a process which all takes time.

Q. All right. Whatever the results are in regard to this study, what the results obviously initially will be reported to the IOC Medical Commission, I take it?

A. Yes, correct, it is the normal way to proceed.

Q. All right.

A. Results or observations we are making during any event, and we have the tendency to take conclusions which will modify our procedures, we will first discuss the -- in the Medical Commission.

Q. Now, you, obviously, are going to find as sure as night follows day that a number of athletes who tested negatively at Seoul show a reduced endocrine profile on everything that we certainly know as a result of this hearing. There are athletes who have taken anabolic steroids who show up for competitions who are clean.

Now, assume for the moment --

THE COMMISSIONER: Who aren't clean who were not proved positive.

MR. ARMSTRONG: Well, who were clean in the vernacular at the time of competition. They don't have the metabolites of steroids in their test.

MR. ARMSTRONG:

Q. Now, what is the object of all of this? What is the IOC Medical Commission going to do with that kind of information?

5 A. I cannot anticipate conclusions which will be drawn by the Medical Commission. And I can only ask you to wait until this conclusions will be made public.

10 Q. I suppose one of the things again that you -- that if the evidence turns out as it most certainly should that you will use it as an example of why out-of-competition testing should be employed?

15 A. This is certainly one conclusion, but also for me the introduction of out-of-competition test at this stage is history. I am discussing only on implementation not in providing reasons why we have to perform out-of-competition testing.

20 I can only refer to what Professor Dugal said two days ago. I wrote a similar letter -- similar article, 1975, based on a lecture I held in June 1974 before the European Track and Field Association which led to the banning of anabolic steroids.

25 The scientific facts provoking, or asking, demanding out-of-competition controls they are known since the beginning. And now we have reached a stage where it

is time to act and not to discuss.

Q. Is it in your mind that you will also use this information or you will use this information to make your case that some rule be established that an athlete prior to an international meeting be able to present a natural steroid profile in order to compete -- sorry, natural - normal steroid profile?

A. I do not think that this will direct conclusion out of the evaluation of the data of Seoul. It may be.

I believe that another conclusion also will be drawn that we are able to say under the certain aspects of this test the number which has been reported previous to the Game, 80 or 90 percent of the athletes, will ingest anabolic steroids is wrong.

Q. We are going to get to that in a moment I take it you are referring to what Mr. Heller --

A. No, it was not only Mr. Heller, but go on.

Q. Whatever the percentage -- well, we will get to it in a moment --

THE COMMISSIONER: That's not quite what is being said. I think you are saying 80 percent of the medal type, those in the finals, not 80 percent of all athletes? You are talking about those that are the elite

athletes, to use a word they use. Nobody said 80 percent of all the athletes were on steroids, that I recall.

THE WITNESS: Okay. You can go through the press articles which have been published before and after
5 Seoul. This differentiation never has been made or never has been made --

THE COMMISSIONER: Well, I sometimes --

THE WITNESS: -- to this extent.

THE COMMISSIONER: If you read the
10 transcript you are going to find there is a distinction being made.

MR. ARMSTRONG:

Q. What are the other objects of this
15 study? What use may be made of it because obviously somebody like you isn't going to all the time, effort and trouble --

THE COMMISSIONER: Just carrying that on, is it the purpose of the test to show your study that
20 anabolic steroids are not a serious problem in international competition?

THE WITNESS: No, sorry, if I am starting to evaluate data, you have not --

THE COMMISSIONER: You said that you want
25 to disprove what you think are overstated overstatements

of the use of anabolic steroids.

THE WITNESS: Okay. This is may be one
issue of this -- of these results you will obtain because
overstatements in this area as unfavourable or
unacceptable --

THE COMMISSIONER: Nobody wants
overstatements.

THE WITNESS: -- is laying down figures.
You can only act when we have exact figures about the
frequency of the misuses of anabolic steroids.

THE COMMISSIONER: But, with all respect,
you are not going to find that out by your present method
of testing after competition, you know that now?

THE WITNESS: We knew this also before.
This is not the issue. I am sorry, but I have understood
since the beginning that there is a clear distinction
between substances which must be controlled at the day of
the competition and between substances which are used in
the training period and which have to be controlled out of
competition.

THE COMMISSIONER: Exactly. And anabolic
steroids are used during the training period. That's the
benefit of them.

THE WITNESS: This is not quite correct.

THE COMMISSIONER: Well --

THE WITNESS: They have been used and sometimes where there is no control they are even used at the day of the competition.

THE COMMISSIONER: I understand that, but
5 you still get the benefit of it, as you know, Doctor, from the months and years of use during heavy training sessions. We have heard all the evidence of that. You don't need it in your system to get the benefit from it.

THE WITNESS: Please understand I do not
10 want to elaborate about the benefits of anabolic steroids here.

THE COMMISSIONER: Well --

THE WITNESS: We would stay -- we would have to stay several weeks.

THE COMMISSIONER: If you don't take the
15 problem seriously, then I am concerned about it.

THE WITNESS: I must object to this statement.

THE COMMISSIONER: Well, carry on, please.

20 MR. ARMSTRONG:

Q. What are the other objects of the study that you are doing? Are there any other objects? I mean you are not going to use it to make the case for
25 out-of-competition testing because you say that's history

and the case has been made and all you and the IOC Medical Commission are concerned about is implementation.

Then you say it may reveal some information about the extent of the use of anabolic steroids. And what are the other -- what other objects are there of this study?

A. I see at this moment no further conclusions which may be drawn out of this evaluation.

Q. Then are there any -- is there any other work being done in relation to all of the information that is available from Seoul in respect of the analysis of what was it, some 1,600 urine samples? I forget what the number was.

THE COMMISSIONER: You said 1,100.

MR. ARMSTRONG:

Q. It was 1,100 males?

A. Of males, and 1,600 total. Not to my knowledge.

Q. Is there any other work being done in respect of these samples or any residue of samples of urine? You mentioned Johnson, you mentioned there was one other case in which you checked the B sample?

A. No, this was connected with a misunderstanding of the submitted data.

Q. But was that the checking of the residue of a B sample following a positive finding?

A. Yes.

Q. And that was an announced positive finding in which the athlete was disqualified?

A. It was announced one, yes.

Q. Was that Linford Christie?

A. No, no.

Q. Then there is no work that has been done subsequent to Seoul on any other urine samples other than the one you have mentioned and Johnson?

A. No, this is correct.

Q. Then you promised to straighten me out on the rule in respect of testosterone. And as I understand the rule, in order to make a positive finding in respect of the anabolic steroid testosterone, the lab must find that the ratio of testosterone to epitestosterone in the urine is greater than six; have I got the rule correct?

A. This is correct.

THE COMMISSIONER: What does the rule actually say? I know you read it the other day and I have forgotten it.

MR. ARMSTRONG: I have got it right here. Under the schedule listing the various anabolic steroids,

the list ends with testosterone "and related compounds".
And there is an asterisk opposite testosterone and it
reads, the footnote opposite the asterisk, reads
"testosterone, the definition of a positive depends upon
5 the following: The administration of testosterone or the
use of any other manipulation having the result of
increasing the ratio in the urine of
testosterone-epitestosterone to above 6".

10 So, I take it that that means that if you
are a hair's breadth, a fraction, or whatever unit above
six, you are positive for testosterone and subject to
being disqualified from the Olympic Games, correct?

15 A. Correct when you are reading the rule,
but the rule implies that statistical evaluation of the
result is made.

THE COMMISSIONER: I am sorry, I didn't
hear you, Doctor.

THE WITNESS: A statistical evaluation of
the analytical result is made.

20 THE COMMISSIONER: I see.

THE WITNESS: As it was elaborated a little
bit by Professor Dugal, if you are repeating on the same
sample the analysis, you will have slightly differing
rules.

25 And I have prepared here some slides to go a

little bit deeper in this.

THE COMMISSIONER: Is this a different test than we have discussed earlier?

THE WITNESS: Pardon?

5 THE COMMISSIONER: How do you test for this?

THE WITNESS: With the testosterone-epitestosterone ratio, it is in principle --

THE COMMISSIONER: The same.

10 THE WITNESS: -- detected in conjugated fraction. You have the slides in the memory. You have --

THE COMMISSIONER: The same way as we have seen for the endocrine profile?

15 THE WITNESS: Yes. And this is the screening procedure. If their ratio is six or above six, the laboratories ask, and I have provided here what is said in the GLP, we have elaborated this, and we have made an amendment beginning this year April, where it is specified what the laboratories have to do.

20 First of all it means three aliquots, prepare them, inject them at least twice, and then performing the statistical results.

THE COMMISSIONER: All right.

25 THE WITNESS: Now to come to the definition of an error in analytical chemistry. If you have the value you will measure, it may be a concentration, it may

be a ratio.

THE COMMISSIONER: Right.

THE WITNESS: Or it may also be another
physical parameter. And if you have the theoretical value
5 X, you will measure once a value which is a little bit
higher, and then you will find a value which is a little
bit lower. Rarely you will find the exact value.

THE COMMISSIONER: I see.

THE WITNESS: And if you take and if you
10 performed a lot of repetitions and you will correlate the
frequency of the individual value or individual values,
you will see that you will get --

THE COMMISSIONER: I see.

THE WITNESS: -- a curve which is
15 well-known. It is the growth curve of normal
distribution.

20

25

THE COMMISSIONER: All right.

THE WITNESS: Then you can calculate statistical probability expressed in terms of standard deviation. This is the axis here. If you take the area
5 beneath this curve, this will be 68 percent probability.

I should mention that this curve you can only construct when you have a lot of observations. In reality, the curve will be a little bit broader due to the fact that you have only a few observations. Now there are
10 procedures well established to calculate the mean of repetitive determinations, the standard deviation.

THE COMMISSIONER: You just don't add up all the tests and divide them by the number of tests?

THE WITNESS: Sorry, I didn't --

15 THE COMMISSIONER: You just don't add up the number of tests and then divide them by the number of tests?

THE WITNESS: No.

20 THE COMMISSIONER: That's what I thought would be a mean average, but I'm --

THE WITNESS: Now we are calculating the mean average. This will be calculated. I express it here as X and the standard deviation. The standard deviation is an indicator, a measure for the statistical
25 probability.

So in calculating the range, we have to consider which statistical probability we choose. In analytical chemistry, it's quite normal, also in medical chemistry, to use the two standard deviation range
5 corresponding to 95 percent probability. We have chosen, it's in the GLP, the free standard deviation. This means 99 percent probability.

THE COMMISSIONER: Well, it's three, though. There's plus or minus .2 up to plus or minus .6.

10 THE WITNESS: So let's come to the example which Mr. Armstrong gave. 6.1 should be positive, following the rules. If we will take 95 percent probability, this will mean roughly .4, so the range will be 5.7 to 6.5. In this case, we have chosen in favour of
15 the athletes, 5.5, 6.7. What normally is not correctly understood, an analytical, quantitative determination does not mean an exact figure which is correct to the third --

THE COMMISSIONER: Well, to come out with 6, you'd have to have at least 6.6.

20 THE WITNESS: This standard deviation is a variable which depends on the quality of the analytical measurement, and this variable is a little bit variable from day to day performance of the instruments.

THE COMMISSIONER: Well, if you've got 6.6
25 and use either .02 or .04, you've still got above 6; but

if you have .06, you're back to 6 again, right?

THE WITNESS: Yes. So we should have a mean, when I take this example, you know, to calculate the case positive, at least of 6.6.

5 THE COMMISSIONER: Right.

THE WITNESS: So this is the correlation in calculating this, and --

THE COMMISSIONER: Is this explained someplace in your book?

10 If I just read the rules, Mr. Armstrong, it doesn't say anything about that.

THE WITNESS: Okay, but you cannot lay down in a rule book, which is essentially --

15 THE COMMISSIONER: Well, Dr. Dugal said there is some sort of a standard or a book of procedures to follow?

20 THE WITNESS: Yes, but this is a technical book we have published, GLP, "Good Laboratory Practice", and this determination of testosterone is part of this book. It's a standard operation procedure the laboratories have to follow, and there also we have described this way how to calculate but also other details which are essential to obtain a correct, quantitative result.

25 THE COMMISSIONER: Thank you.

THE WITNESS: You must always consider that the concentrations where we are working are very low. They are in the PPB ratio, in the PPB range.

THE COMMISSIONER: I thank you.

5

MR. ARMSTRONG:

Q. So does this figure of 0.2, your 99 percent probability factor, that standard deviation, that appears in your operating manual?

10

THE COMMISSIONER: 0.2 or 0.6?

THE WITNESS: Sorry, 0.2, this is an example here. This is a value which will be calculated on each set of analysis which have been performed with the urine of an athlete. It's a variable which is depending on the analytical results you have obtained.

15

MR. ARMSTRONG:

Q. I see. In order to make the calculation for the testosterone/epitestosterone ratio, how much urine do you need?

20

A. Until now, most of the laboratories will use 5 milliliters of urine.

Q. 5 milliliters?

A. 5 milliliters per determination. This means that a residual volume, after performing all the

25

screening tests, of 15 milliliters should be variable; but I am sure that there are some experiments done in other IOC accredited laboratories, not in mine at this moment, to reduce the volume to 2 milliliters.

5 Q. Let me see if I've understood what you've said. You obviously have to run some other tests, and in order to run your testosterone to epitestosterone ratio, you need at least, are you saying, 15 --

10 A. 15 milliliters, but depending on the concentration of the urine, it is possible to reduce the volume which is used by tests down to 2 milliliters so that the residual volume sometimes of 6 milliliters will be sufficient.

15 Q. Does it ever happen that you don't have the residue of 15 milliliters and you've got, say on your first run, a reading of 6.2 and there is no urine left? What happens?

A. This may happen, and in this case --

THE COMMISSIONER: You just can't test.

20 THE WITNESS: You cannot test and you cannot report on this result.

MR. ARMSTRONG:

Q. I take it that has happened?

25 A. This has happened, but not so often, to

my knowledge. In my laboratory I don't remember one case, but this is a theoretical possibility; but you can be sure it didn't happen in Seoul.

Q. Before you apply the standard

5 deviation, whatever it is, plus or minus 0.2 or whatever figure you apply, how many times do you run the calculation to get your average of 6.1 or 6.2? I understood from Professor Dugal yesterday that it would be four aliquots with two injections per aliquot. So there
10 would be eight numbers to average?

A. It's depending on the case. When you

are following what they have laid down in the procedure, it will be three. If you have enough volume, you will take four or even five. Sometimes we receive 100
15 milliliters and we can perform a lot of tests. Then all these values, if they are corrected at the first appearance in the expected range, they will be combined. We will calculate out of the repetitions of the gas chromatography parent sample, first the mean and then we
20 will, it is described there, calculate the mean of all individual determinations.

MR. ARMSTRONG: You have provided us, as you've indicated, with a copy of a document that is headed "Standard Operating Procedure to be followed if
25 Testosterone administration is suspected". For the

purpose of completing the record on this, I propose to file this as the next exhibit, please.

THE REGISTRAR: 226.

5 --- EXHIBIT NO. 226: DOCUMENT ENTITLED "STANDARD
OPERATING PROCEDURE TO BE FOLLOWED
IF TESTOSTERONE ADMINISTRATION IS
SUSPECTED".

10 MR. ARMSTRONG:

Q. Professor Donike, I realize that I had neglected to cover one subject with you related to the endocrine profile and that is the evidence that a West German broadcaster gave here in June of this June. I hope
15 I'm not misstating the evidence, but he indicated, I believe, that he had had a telephone conversation with you some weeks before he came to Toronto and that he had a discussion with you about the endocrine profile. You are alleged to have said to him that you had perfected the
20 analysis of the endocrine profile to the point where you could make a determination whether an athlete had taken steroids back as far as five to eight years, that you had conducted a study of the results from Seoul and that your conclusion was that about 80 percent of the male track and
25 field athletes gave an indication of having in the past

taken anabolic steroids. He then went on to say that immediately before coming to Toronto to testify here that he telephoned you and that you said that that was not what you had said or meant, that you did not indicate that you could make a determination back as far as five to eight years, and he provided that evidence.

I think that fairly summarizes what he said without going into every last word and detail. It sounds to me like you've had available the transcripts of our hearings, and perhaps you've read his evidence and are familiar with it; but I wanted, in fairness, to give you an opportunity, since you are here, to respond to what it is that Mr. Heller said.

A. Okay. I feel it is necessary to explain a little bit in detail the situation.

On the 4th of March, it was after some days of the testimony of Charlie Francis, Berndt Heller appeared in the German television show, ZTF, and he gave a comment in making illusions that the IOC, not the Medical Commission, had covered several cases in Seoul.

I heard this by chance, and I wrote a letter to his superiors stating that nobody in German television has a right to make such claims because they are not substantiated, and to repeat rumors which have been reported in Seoul makes no sense.

I received a phone call, and I tried to pin him down that this is unjust. It is unfair to the work of the Medical Commission of the IOC. We are about 35 people having performed, I must say, a very excellent job in each detail, and nobody has the right to come and claim positive cases have been covered. This is essential. But you must also know the background of Heller. He's a close friend to Charlie Francis, and apparently this was kind of a rescue attempt.

THE COMMISSIONER: Please don't comment. Doctor, you're here to answer questions. You're not here to argue a case.

THE WITNESS: Okay, but this must be argued.

THE COMMISSIONER: Just give your evidence. Tell us what you told Mr. Heller.

THE WITNESS: The beginning was that I blamed to him to report unsubstantiated rumors.

THE COMMISSIONER: You told him that?

THE WITNESS: Then there was some discussion. He phoned. Apparently he was not at ease with my letter to his superior. I explained to him and tried to explain to him some things, and he mentioned the case that 80 percent of the athletes in Seoul have been doped. I told, please, stop there. There is no reason to

give such a figure because this figure does not consider the reality. There are a lot of factors to be considered; first the sex, then the age of an athlete, the nationality, and especially in sports, in Olympic sports, the discipline where they are participating. The statement --

MR. ARMSTRONG:

Q. Well, can I just interrupt you there. Why would you say the nationality? We've certainly heard a lot of evidence here that the steroid problem knows no national boundary. East, west, north, south, whatever country you care to choose, the problem clearly exists, Dr. Donike. Surely you don't suggest anything than that?

A. There are slight differences, but please. This is an unsubstantiated claim, 80 percent or some guesses are even higher. This was made before the games, and they gave me a report asking this question. This is saying --

Q. Who made the guess before the games?

A. Pardon?

Q. Who made the guess before the games?

A. The first guess I heard and I have in my memory was made by a person, Jenkins, at that time sitting in a jail because of anabolic steroid trade. This

was the first memory I have in my mind.

So this is maybe one of the sources, but there have been others. This was an essential, what I claimed. Then I explained to him a little bit of our
5 scientific work. I never made the statement we have a retrospectivity back to five or eight years, and I never made a statement that could be explained out of the results I have seen, not yet evaluated, of Seoul. They are not yet evaluated until now. But my impression that
10 80 percent have been on anabolic steroids, out. Not more, not less. What he understood, I don't know.

Then he was apparently going here to this Inquiry, and he phoned me in the morning, apparently just before the plane left, without telling me where he was to
15 go. He tried to go once more through our conversation. Apparently, under the impression that he is here to give some declaration under oath, he understood what I tried 14 days ago to explain to him.

THE COMMISSIONER: Well, you said you
20 qualified your statement?

THE WITNESS: I can only tell you when I'm writing an article or lecture, preparing a lecture as I did at that time for Monte Carlo, you can assume, as a scientist, that I know what I'm saying. When somebody is
25 asking me a question about retrospectivity of this steroid

profile technique, I will give him the correct answer.

THE COMMISSIONER: Well, did you tell him anything about the work you were actually doing? What did you tell him, according to your version?

5 THE WITNESS: Pardon?

THE COMMISSIONER: You discussed this matter with him, obviously?

THE WITNESS: Yes.

THE COMMISSIONER: What did you tell him?

10 THE WITNESS: The same that I told you this morning in the slide presentation. Nothing else, nothing more. I cannot take retrospectivity, which based on our hard facts and data --

15 THE COMMISSIONER: You showed us that today.

THE WITNESS: Okay, it's difficult to explain science to a layman. Especially it would be difficult to explain science over the telephone. I assume this.

20 THE COMMISSIONER: I understand.

MR. ARMSTRONG:

25 Q. As I recall it now, he did say that in this second telephone call you indicated that it was three to four months and that your study would be able to make

an assessment of a person having taken anabolic steroids. You obviously didn't suggest 80 percent. Did you suggest some percentage?

5 A. No, I avoided. Please understand, it is my firm opinion that it is wrong to make any guess and to give any figures. And to nobody, since these figures appear, I have, to anytime, make such a suggestion. I have here a paper I wrote myself, an article in the FAZ. I can give it to you. There, I qualified such statements
10 as blank nonsense.

 Q. All right. I suppose qualifying such statements as blank nonsense, as being able to come up with specific scientific knowledge as to what the percentage is, that's what you would call as nonsense?
15 You are not, I take it, suggesting that there is not a serious problem in respect of the use of anabolic steroids?

 A. Sorry, I believe since more than 15 years, I'm the forerunner fighting doping and also
20 fighting the misuse of anabolic steroids. All the analytical methods now in use have been developed in Cologne in my laboratory, the GC-MS method to detect, and nobody has the right to blame me, to minimize the problem. On the contrary, I'm accused in some countries to blow it
25 up.

MR. ARMSTRONG: You have provided us, as I asked you to do yesterday, with the test results, analysis results from the Pan-American Games. I think, sir, you have a copy in front of you, as does the Registrar. It's a two-page document that says "Pan-American Games - Caracas" with a date in 1983, "Dope Analysis - Final Report". I propose that this be marked as the next exhibit, Exhibit 227.

THE REGISTRAR: 227.

--- EXHIBIT NO. 227: TWO-PAGE DOCUMENT ENTITLED
"PAN-AMERICAN GAMES - CARACAS,
DOPE ANALYSIS - FINAL REPORT".

MR. ARMSTRONG: I'm going to file a series of documents now.

THE COMMISSIONER: Are you still on the Olympic Games?

MR. ARMSTRONG: Yes, but before I get -- the next exhibit that I propose to file is a document supplied by the IOC Medical Commission which reads "Athletes Sanctioned For Positive Dope Controls During Olympic Games".

THE COMMISSIONER: Sorry, are you doing the Caracas one here?

MR. ARMSTRONG: I just did it, Exhibit 227.

THE COMMISSIONER: You are putting them all
in now?

5 MR. ARMSTRONG: I'm going to put them all
in now so that we have them in one place.

Exhibit 228, "Athletes Sanctioned For
Positive Dope Controls During Olympic Games".

THE REGISTRAR: 228.

10 --- EXHIBIT NO. 228: DOCUMENT ENTITLED "ATHLETES
SANCTIONED FOR POSITIVE DOPE
CONTROLS DURING OLYMPIC GAMES".

15 MR. ARMSTRONG: Then Professor Donike
provided us with the results from the Seoul games in 1988,
which is a two-page document entitled "Analytical Results
of A-Samples at the Games of the 24th Olympiad, Seoul,
1988". I propose that that be marked as Exhibit 229.

THE COMMISSIONER: Thank you.

20 THE REGISTRAR: Mr. Armstrong, did you say
that was a two-page document?

MR. ARMSTRONG: Yes.

25 --- EXHIBIT NO. 229: TWO-PAGE DOCUMENT ENTITLED
"ANALYTICAL RESULTS OF A-SAMPLES AT

THE GAMES OF THE 24TH OLYMPIAD,
SEOUL, 1988".

MR. ARMSTRONG:

5 Q. Can I just ask you, do you have in
front of you, Professor Donike, the Olympic Games results
from '68 to Calgary in '88?

A. Not at this moment, but I should have
them.

10 Q. I'll get you a copy.

A. Thank you.

Q. Looking at Exhibit 228, you already
mentioned yesterday that in '68 there were no positive
results. It looks like '72, when you are in charge of the
15 doping control lab, that's the first time that there is
more than one positive result, with eight positive results
in Munich?

A. Not quite correct, seven.

Q. Seven?

20 A. There is one name too long, and the
computer uses one line more. Seven.

Q. Okay, sorry. I'm just looking at the
summer games for the moment. We go to '76 in Montreal,
and that's Professor Dugal's laboratory that's doing the
25 testing there. There is eleven, including a number of

anabolic steroids, seven anabolic steroids, and let's go to --

THE COMMISSIONER: Almost all weightlifting except one.

5 MR. ARMSTRONG: Yes.

MR. ARMSTRONG:

Q. Let's just turn over the page. I'm going to come back to 1980. We go to Los Angeles in 1984, and it looks like at Dr. Catlin's lab, 14 positive test results; am I correct?

10

THE COMMISSIONER: I get 12.

THE WITNESS: I get also 12. This one more is I think due to the computer.

15 THE COMMISSIONER: It's got two lines where some names -- there is 12 there.

MR. ARMSTRONG: Again, there are two cases where there are two lines, sorry. It was late at night when I was doing my homework. I missed that.

20 THE COMMISSIONER: What is nandrolone?

THE WITNESS: Nandrolone? This is a generic name for a compound named also nortestosterone. It is an anabolic steroid. It's a long-lasting agent, as it is applied.

25

MR. ARMSTRONG:

Q. So in Los Angeles, then, the anabolic steroids, there's nandrolone; there's testosterone.

A. Methenolone.

5 Q. Methenolone, is that an anabolic steroid?

A. It's also an anabolic steroid, also mostly applied in the form an ester, an oil-based preparation.

10 THE COMMISSIONER: So all except ephedrine would be anabolic steroids; am I correct?

THE WITNESS: Yes, correct.

MR. ARMSTRONG:

15 Q. Then back in 1976, there are, out of the 11, at least 8 anabolic steroids. What's phenylpropanolmine mean?

A. It's a stimulant also named norephedrine.

20 Q. In any event, it clearly looks between '76 and '84 that anabolic steroids, so far as revealed by these tests, are certainly on the rise; is that not so?

A. This is correct.

25 Q. You helped set up the lab in Moscow in 1980. There are no positive results of any kind from the

Olympics in 1980. Have you any information to share with us as to why there seems to be this somewhat surprising result that in 1980 there just are no positive tests in Moscow?

5 A. I must go back to '76, Montreal Olympic Games, the screening procedure which had been performed by Professor Dugal and his assistants based on radioimmunoassay techniques. These techniques will pick up only these steriods which are related to methandienone. 10 As far as I recall, most or even all of the anabolic steriods detected in Montreal have been methandienone. This means at that time Dianabol.

15 The technique which we evaluated in Cologne started to get effective maybe in 1980 in our laboratory and only in some years later in other laboratories.

 The Medical Commission of the IOC had, based on the experience of Montreal and the data available, decided that the anabolic steroids testing in Moscow should be performed by radioimmunoassay technique.

20 Apparently most of the people had learned that only a fraction of the anabolic steroids could be detected by this technique. They stopped the ingestion of methandienone and replaced, some of them at least, the anabolic steroids by testosterone. This, by the way, is 25 also the initial step in testing for testosterone later.

This is the explication when you are going now to '84 to Los Angeles. You will see that in Dr. Catlin's laboratory were detected nandrolone and methenolone and testosterone, all three available in oil-based preparations, long-lasting. Therefore, with the analytical methods used and first introduced at the Olympic Games, '84, with a relatively long retrospectivity, this explanation of these results. '76, radioimmunoassay techniques continued to Moscow, not replaced only for a few samples for IAAF by GC-MS and complete control of all urine samples, 1984, in Los Angeles. It took very great efforts from the Medical Commission of the IOC and also the Executive Committee to implement this technique, because it seemed to the Organizing Committee to be an expensive technique, but the Medical Commission insisted. We were able to perform it, and there you see the results.

THE COMMISSIONER: Thank you.

MR. ARMSTRONG:

Q. Going back to '76, do I understand what you said in that rather long answer is you believe that most of the '76 results were the detection of Dianabol?

A. Yes.

THE COMMISSIONER: They were mostly

weightlifters.

MR. ARMSTRONG:

Q. Now Dianabol didn't go off the market

5 in North America, off the white market or pharmaceutical
market until about '82 or '83, and it certainly in the
early '80s, on the evidence that we've heard, was still
far and away the steroid of choice in North America. Had
it changed for the Eastern Block? I mean, Moscow in 1980
10 is mainly the Eastern Block countries at the Olympics; is
that no so?

15

20

25

A. Yes, that is correct, but also there is methandienone available, but for me the expectation is that the athletes took the ingestion early enough so that they were at the time of the competition below the
5 detection limit of the analytical methods applied. And the consequence of this we have discussed several times out-of-competition control.

Q. In any event, from what you have said, it would appear that for the Olympics in 1980 the athletes
10 were able to manage their drug taking to the extent that they were able to escape the detection methods that were available in Moscow at that time?

A. This was known very early in advance.

Q. Is it possible that or do you know did
15 the athletes from the various countries manage their steroid taking with the assistance of either their national federations or any other representatives?

A. I have no information on this point.

Q. Now, did this result surprise the
20 members of the Medical Commission in 1980?

A. I cannot discuss this. At the time I was, as you may recall, not a member of the Medical Commission of the IOC and I was not directly involved in the discussions at Moscow and shortly after Moscow.

Q. Well, I thought we covered your CV
25

yesterday which say 1979 to '80 preparation of the dope control laboratory in Moscow and responsible for the accreditation on behalf of the IOC Medical Commission.

5 I had assumed that probably you had already established, although not formally perhaps informally, a relationship with the IOC Medical Commission and that you would have been one of the people with whom they discussed these results since you set up the lab?

10 A. The newly-founded subcommission doping and bichemistry met, as far as I remember, in February 1981 the first time in Cologne. And naturally the result, the outcome, were discussed. And one consequences out of the failure to detect by radioimmunoassay anabolic steroids in Moscow was that the Medical Commission of IOC
15 decided to ask for gas chromatographic-mass spectrometric test.

Q. You, I think you told us this morning, were able to detect Stanozolol, for example, as early as 1979. You had developed a method for doing that?

20 A. No, it was I would say a preliminary method. It worked in our hands.

Q. Was that through gas chromatography-mass spectrometry?

25 A. Yes, it was essentially the same technique which has been used also in Seoul.

Q. When was this technology of using mass spectrometry or gas chromatography-mass spectrometry, when was that technique perfected?

5 A. I would say that it was 1981, it was inauguration of my institute in Cologne that I presented the method in which is still used today to the participaant of this first Cologne workshop in dope analysis.

10 Q. Was there ever any suggestion that for the Moscow Games gas chromatography and mass spectrometry be used?

15 A. They have been made some recommendations shortly before the Games, but at that time, and in principle this is also valid today, the rule was that the Medical Commission of IOC publish a list of the dope agent or the banned classes with examples two years before the Games to give the laboratories and the local organizing committees enough time to prepare the dope control and dope analysis.

20 It takes some time to implement new analytical methods. So, this seems to be a reasonable delay.

25 Q. In the whole history of dope control, doping control if I can put it that way, am I right there has ever only been one East German positive test back in

1978; is that not right?

A. This may be correct, but I have the statistics not in my mind. As far as I remember, we got at least one positive in Germany on ephedrine in 1978 in cycling, but I am not very sure in statistics of this kind.

Q. In the history of the Olympics only one -- in 20 years, only one Soviet athlete has ever been found positive, am I right?

A. I cannot comment, I don't know.

THE COMMISSIONER: Well, it is neither here nor there. It is Innsbruck in '76? No, that is not --

MR. ARMSTRONG: Innsbruck in '76 for ephedrine, Nordic skiing.

THE COMMISSIONER: All right.

MR. ARMSTRONG:

Q. That's what your Exhibit 228 shows, right?

A. Okay.

Q. Do these kind of figures and indeed the figures in Moscow suggest -- in Moscow in 1980, suggest that there is still a long way to go in doping control with respect to the Eastern Bloc countries?

A. I cannot see that doping control is a

question of the Eastern Bloc countries. It is a question over the world. We have certain importance more here and there. I think this is not connected with the social system people are living in.

5 Q. All right. So, then you would agree with my statement a little earlier then that this problem knows no national borders?

A. Yes, okay, but I would like to weight a little bit, you know. To weigh a little bit more here
10 than there. But it is a matter --

Q. I am sorry, I don't understand what you mean --

THE COMMISSIONER: Weighting, not wait for the next question, he is weighting the different areas,
15 different sports.

MR. ARMSTRONG:

Q. To qualify?

A. The qualify, okay. It is a normal
20 expression in science.

THE COMMISSIONER: It is a good expression, weighting. I am used to it --

THE WITNESS: To weigh an information.

25

MR. ARMSTRONG:

Q. And in any event, to the layman, Professor Donike, it at least is a rather surprising result that in the Summer Games in 1980 there are no
5 positive findings. And it is rather surprising to look at the international scene and see that with perhaps one exception the East Germans have never test positive and in the Olympic Games the Russians have only tested positively once.

10 THE COMMISSIONER: All right.

MR. ARMSTRONG: It is surprising.

MR. ARMSTRONG:

15 Q. Anyway, I will move along. Then the Pan-American Games in 1983, they took place in Caracas in August, was it?

A. Yes, August.

Q. You were in charge of the lab there?

A. Yes.

20 Q. And here in your report you have numbered the results. There were 19 doping violations as revealed by the results in Caracas.

A. Yes, correct.

25 Q. Then also in 1983 as you mentioned yesterday there was a world track and field -- the World

Championships of Athletics, Track and Field in Helsinki.
And were they held just before or just after the
Pan-American Games?

5 A. One week before. The opening ceremony
was one week earlier.

 Q. Now, I realize that the Pan-American
Games involved more than athletics, but looking at the
Pan-American Games, you had 1, 2, 3, 4 positive findings
for the sport of athletics; two of them being at least
10 steroids.

 Did it surprise you that in the world
championships for track and field in Helsinki in 1983
there were no doping violations disclosed by the doping
control measures there?

15 A. I do not think that this is a matter of
surprise. This is a matter of fact. And I explained
yesterday that nobody has the right to compare two
different events with two different populations of
athletes.

20 And going back to the results of the dope
analysis and calculating back the importance of doping in
this or that sports or taking this as an indication that
this or that federation take the questions of doping less
serious than others.

25 You must be aware that until 1983 in the

whole America, except the Olympic Games '76 in Montreal, no dope control has been performed on a regular basis. I do not remember one event where, except the Montreal Olympic Games, dope control has been performed.

5 This is a situation. The Pan-American Games '83 have been a turning point, you know, that especially in Canada a dope control program was implemented after Caracas and also in the United States dope control was implemented after Caracas not before.

10 Q. No, I understand, and certainly you are right, the watershed in Canada, and I believe perhaps the watershed in many places in one respect was Caracas with the realization that this problem of doping was even broader than people had anticipated at that time.

15 And recognizing that that was the situation that emerged in August of 1983 in Caracas, again, as a layman at least, is it not surprising that the problem didn't appear to show itself in Helsinki because if you look only at the Helsinki results you would come to the conclusion, at least so far as athletics, are concerned
20 that may be it isn't a problem.

 A. Once more, I can only repeat the test performed at the events give only a poor picture about the misuse of anabolic steroids.

25 Q. All right.

5 A. There is no doubt, I know this, you can go back in the literature. Since 1974 it is a consequence of the pharmacological and biochemical properties of this compound. This must not be discussed, but I cannot follow your conclusions.

 I am not a layman; I think I am an expert.

10 Q. All right. Well, we have, apart from my observations as a layman, we have had a witness, for example, who was the Vice President of the IOC -- is the Vice President of the IOC who had some very critical comments to make about the fact that there were no positive findings in Helsinki.

15 A. I must clearly state here that in this case, the Vice President of the IOC was not spite (sic) by the Medical Commission of IOC. If he would asked me before I would have advised him in the same sense I explained to you what are the facts.

20 Q. Let me ask you this question: In 1983, did the -- well, first of all, 1983, the World Championships in Helsinki they were run by, controlled by, sponsored by the IAAF, correct?

 A. Yes, organizing federation.

25 Q. The IOC had nothing to do with the IAAF meet in Helsinki. And did the IAAF have a rule at that time banning the use of testosterone?

A. As far as I recall, yes. It was the first year it was on the list, but I am not quite sure.

Q. Well, it certainly as early as 1975 had a rule banning the use of anabolic steroids?

5 A. Yes, it did.

Q. Did its list read like the IOC list listing a series of particular steroids ending with "and related compounds"?

A. Yes.

10 Q. So, if that was the rule, testosterone was clearly a banned substance in 1973?

A. It was added as an example in quantitative limit to the IOC rule 1982. It is quite well-known that international federation follow with some delay and may be also with some modifications. And one
15 modification of IAAF rule, I know this because I am a member of the IAAF Commission, is that the IAAF has not followed the IOC rule to fix a limit of six to one. And they leave it to each case to be presented, let's say as
20 normal or unnormal.

Q. In 1983 was the technique that was used in Helsinki to determine the presence of testosterone a technique that analyzed the ratio between testosterone and epitestosterone?

25 A. Yes, it was. It was the same technique

as we applied in Caracas.

Q. Indeed, if the Olympics rule had obtained at that time in Helsinki, that is an analysis of the testosterone-epitestosterone ratio producing a figure
5 above six, is it not so that at least two athletes would have been disqualified in the World Championships in Helsinki in 1983?

A. No, that is not correct.

Q. Was there a result in Helsinki which
10 produced a testosterone-epitestosterone ratio above six?

A. There was produced in two cases such a result in the screening procedure on the A sample. And on review, it was decided that this should not be regarded as positive. And this was done due to the dilute urine.

15 THE COMMISSIONER: Due to what, I am sorry?

THE WITNESS: To the diluted urines which have been provided.

The Medical Commission of IAAF did not follow up these cases. And as you know, analytical
20 findings on A sample are a different issue than positive case stated on all the information available based on the hearing and based on the test of a second sample.

MR. ARMSTRONG:

25 Q. I see. You had told me earlier today,

I think this morning, that normally with two or three exceptions that you were aware of the results on the A sample were followed by identical results on the B sample?

5 A. This is correct, but you cannot apply this to a quantitative definition which is determined by other factors.

 Q. So, the testosterone-epitestosterone ratio is an exception to that rule, is it?

10 A. It is a quantitative determination compared to the qualitative determination which is performed and asked for in all the other cases.

 Q. Yes.

15 A. We have two examples for this: The quantitative determination of caffeine and this ratio determination. These are in principle quantitative determination and for such a quantitative determination there exists different rules and different approaches.

20 And there is as I have spelled out before, the policy of the Medical Commission of IOC regarding the determination of DAP was first you can see it spelled out '86, and now incorporated in the GLP. So --

25 Q. In this situation in Helsinki, as I understand it, they decided not to make a positive finding because the urine samples were too dilute. Does that suggest there was some manipulation of the urine by the

athletes in question?

A. I cannot comment on this. There are a lot of possibilities to dilute the urine if not by diuretic. You can also get dilute urines when athletes cannot urinate immediately after event and they are sitting for four or five hours in the dope control station drinking beer. So, it is not possible to follow this speculations.

Q. Well, there is then some danger in these athletes going to these doping control stations and drinking beer, I take it, for the integrity of your tests. And one of the pleasures we have heard of being selected for doping control is that if you happen to like beer you are going to be able to drink a little bit.

A. Maybe you have also heard that the Medical Commission of IOC restricted the aliquot of beer, which is distributed to ice hockey players, to one bottle per player in Sarajevo in 1984.

Q. All right. Well, I don't want to dwell on this too long, just a couple of more questions.

I take it in any event in Helsinki that they must have begun from the A sample procedure to the B sample procedure and the two athletes in question must have been able to convince the doping control authorities that there was no reason to find them positive?

A. I told you earlier that after my recollection the B sample was not touched.

Q. I see.

5 A. It remained at the stage of the screening procedure in the A analysis, but if you want to know them more, you have to write to IAAF. I was not present at that time.

Q. Well, I have got the IAAF right in front of me here, so --

10 A. Yes, okay, but please understand that I am not -- each case which came up and there was once discussing the Medical Commission of IAAF in my mind.

Q. In any event, in that kind of situation, when you have got a ratio that's above six --

15 THE COMMISSIONER: No, in his estimate would not be above six because it wasn't high enough -- no, the IAAF didn't have the rule anyway.

THE WITNESS: Pardon.

20 THE COMMISSIONER: The IAAF didn't have that rule?

MR. ARMSTRONG: No, but they had the same testing procedure. The testing procedure was to calculate the testosterone-epitestosterone ratio. So, if you get above six, you know sure as night follows day that the athlete is on testosterone.

25

The only qualification here is that they have got a urine that's too dilute. And I want to ask Doctor --

THE COMMISSIONER: I am sorry, I thought
5 Dr. Donike said they did not, the IAAF did not accept the six to one rule.

THE WITNESS: Yes, okay, but this is also --

MR. ARMSTRONG: They said they didn't have
it.

10 THE WITNESS: No, no, they have it but they do not accept the six to one limit.

THE COMMISSIONER: I think that's what he said.

15 THE WITNESS: This means on the other hand, the IAAF is able to react also on a mean, you know, determined as explained on 5.5.

THE COMMISSIONER: Why wasn't the B sample looked at in the view of the -- because the first -- because it was too dilute? I am not quite clear.

20 THE WITNESS: Yes, this was what I was told, and I was not part of the decision-making process because at that time I was on my way to Caracas. So, I cannot answer your question.

25 This was the explanation. And I have seen maybe half a year or three-quarter of a year later the

chromatograms, the copies of the chromatograms, and this indicated that urine was very diluted, but I don't recall the specific gravity of this urine.

THE COMMISSIONER: They didn't ask for another test then.

THE WITNESS: Pardon?

THE COMMISSIONER: If it is diluted, why didn't they ask for another test?

THE WITNESS: If urine is diluted but this does not concern the confirmation of a testosterone positive case. The normal procedure in laboratories that you will increase the volume of urine for the next confirmation step.

And to give you an example, we increase in Cologne when urine specific gravity is below 1.005 --

THE COMMISSIONER: Yes.

THE WITNESS: -- we double it. And there have been urines coming in to my laboratory having a density nearly as clear as water, 1.00. And then we take the residual volume. But in these cases, often the urine volume is not enough to make the necessary repetitions for the quantitative determination of testosterone.

The consequence of this for the future, and we paid attention also in Los Angeles, that at the occasion of collection of the urines, the specific gravity

should be measured in this or that way. There are dip sticks to do so. And that at that time collecting really dilute urine, it is time to make a decision, for example, to let the athlete wait a little bit longer and to collect another specimen two or three hours afterwards.

THE COMMISSIONER: Are you still on Helsinki? I am sorry, I interrupted.

MR. ARMSTRONG:

Q. Yes, I am still on Helsinki. I am not sure that I followed everything you say, but assuming that urine in Helsinki was too dilute, and you couldn't make a determination, let's just follow the logic of that.

Suppose Ben Johnson had not passed his urine sample an hour and a quarter or an hour and a half after Seoul, and suppose he was able to stay in that room until 10 o'clock at night or whatever and drink enough beer to dilute his urine, would they have just said, "well, here is the A sample, it is too dilute, that's it"?

A. I cannot comment on decisions which have been made under these conditions, but as I estimate the concentration of urines and take into account that it was an injected preparation, the concentration of the urine would not have played a major role because when you are diluting the urine, you are diluting also what we call

biological background

So, if the urine is not diluted indefinitely, you know you will have enough substance to detect it.

5 MR. ARMSTRONG: Well, could I ask the Commissioner a question, what about these weightlifters in Czechoslovakia? Were they getting injected? I wasn't here for the evidence in Czechoslovakia.

10 THE COMMISSIONER: They were taking Dianabol and some other substance orally, by pill.

THE WITNESS: I have not this transcripts.

THE COMMISSIONER: All right. Well, anyway.

MR. ARMSTRONG: All right.

15 THE COMMISSIONER: I am not quite clear if you say you take the drug by an injection, it is not diluted by lots of water or beer.

THE WITNESS: No, this I didn't want to say. If it is injected like this, you know, staying longer --

20 THE COMMISSIONER: I understand.

THE WITNESS: -- in the dope control station will not change the ratio between the anabolic steroids and the endogenous steroids. And so will not change the ratio between the single we detect and the what we call
25 biological background.

THE COMMISSIONER: I see, all right.

MR. ARMSTRONG:

Q. In regard to the dilution of the urine,
5 in respect of these two samples in Helsinki there are only
two ways it could happen: it could happen intentionally
in order to beat the doping control test, or it could
happen unintentionally by having consumed a lot of liquid,
correct?

10 THE COMMISSIONER: Or a diuretic?

THE WITNESS: No, this is manipulation.

THE COMMISSIONER: Okay.

THE WITNESS: You are correct, these are the
two alternatives I can imagine.

15 MR. ARMSTRONG:

Q. Now, the chances of an athlete in track
and field having consumed so much liquid before the event
in order to dilute his urine, I suggest to you are remote
20 because he is not going to want to be full of beer or
water or anything else in his belly in order to run the
100 meters or whatever event it is we are talking about,
correct?

A. I do not know on what event we are
25 talking about, but --

Q. Well, whatever event it is. You have been in athletics a long time and you are not going to fill yourself up with some liquid before the event, intentionally or unintentional?

5 A. Between filling up and between drinking a reasonable amount, a lot of variations possible, but please go on.

Q. So, it's got to have happened after, afterwards, has it not and --

10 A. No.

Q. -- on some intentional basis?

A. I do not know what is the intention of your question here.

15 Q. All I am trying to say is that the suggestion from Mr. Pound, quite frankly, the suggestion clearly was that the IAAF was not in 1983 serious about doping control. It was not, in his evidence, serious about doping control in 1987. And I am just going back to 1983 and I am suggesting that that evidence that we see
20 here may lead to an inference that the IAAF indeed was not serious about doping control in 1983 because they had two suspicious urine samples that indicated a ratio above six, testosterone to epitestosterone, and in effect did nothing about it because they said the urine sample was too
25 dilute. That's the thrust of my question.

A. With all my respect, you know, I object to your opinion.

THE COMMISSIONER: You don't have to agree with them, but you can't object to them. You've expressed
5 a lot of opinions too, Doctor.

MR. ARMSTRONG:

Q. Am I completely wrong in drawing that conclusion?

10 A. Sorry. I may come to the letter I wrote. I'm not here to discuss the methods of the IAAF.

THE COMMISSIONER: We'll take a short break.

--- Upon assuming.

15 THE COMMISSIONER: Mr. Armstrong.

MR. ARMSTRONG:

Q. Let me just ask you about 1987 in Rome. We've heard some evidence that Dr. Beckett and you,
20 Professor Donike, were designated to be in charge of the doping control setup for the world championships in Rome in August 1987, and that shortly before the championships were to take place, according to the evidence of Mr. Pound, about two weeks before, he said that for no
25 apparent reason, you and Professor Beckett were replaced.

I ask you, is that the case?

A. The facts are in 1986, there was a meeting of the Medical Commission of the IAAF in Stuttgart just prior to the European Championship in Track and Field in Stuttgart?

At this meeting, the Medical Commission of the IAAF discussed the personal decisions to be made for the world championships, 1987 in Rome, and the Medical Commission of the IAAF decided that Professor Beckett should go there to observe the sample-taking procedure in the stadium and I should go to the laboratory to observe the analytical part.

This decision was transferred to Council, and it was in a meeting in December '86, I don't know where, that this decision of the Medical Commission of the IAAF, which more or less is a recommendation, was not accepted by the Council of the IAAF. It was a decision of the Council of the IAAF to send Professor Ljungqvist and Dr. Mikhailova from Romania to Rome.

THE COMMISSIONER: So it was actually six months before?

THE WITNESS: No, even eight, I think. The world championships were at the end of August, and this council meeting was somewhere in December.

THE COMMISSIONER: Sorry, you're right.

THE WITNESS: So 14 days is not correct at all, and also it's not correct --

THE COMMISSIONER: Why was that? Do you know why that was done? Was there there any --

5 THE WITNESS: I have no information on this point. I wasn't very much amused out of the different aspects, but it was the decision of the Council. Apparently they made the decision to let participate at the dope control procedures a representative of the
10 socialistic countries.

THE COMMISSIONER: All right.

MR. ARMSTRONG:

15 Q. But Professor Ljungqvist was not a representative of the socialistic countries, in your term of the use of "socialistic". He's from Sweden, although there may be a political debate on that.

THE COMMISSIONER: Your definition might be different.

20 THE WITNESS: Please understand. Professor Ljungqvist is one of the Swedish, so he may be assigned to the western part of the world and Dr. Mikhailova to the socialistic part. So in this way, you may explain this decision, but --
25

MR. ARMSTRONG:

Q. That is, however, speculation on your part. You don't know why you and Beckett were replaced?

5 A. No, I have no information on this point.

Q. To this day, you have not been provided with any explanation as to why you and Beckett were replaced?

10 A. I do not think that the Council of the IAAF is obliged to explain its own decision, which had been made a long time before, to the people or to the persons which are involved in this. It's like this.

15 Q. I'm not proposing to get into an argument about it. I just want to be sure that we have the evidence correct that there is no explanation, and I think that's as we have it.

20 Professor Ljungqvist who did, together with Professor Mikhailova, did take over the doping control, and I take it Professor Ljungqvist, he was the person who was in charge of doping control in 1983 in Helsinki after you had left; is that so?

A. Yes, he was in charge there from the beginning.

25 Q. At the Asian Games in Seoul in 1986, the information I have is that 585 samples were tested and

there were positive results of 20; am I correct?

A. I do not know which paper you have available.

Q. I've got a paper prepared by Dr. Park.

5 A. Yes, but I do not know where is the table. There have been made 20 positive analytical findings in the A procedure. A lot of them have been ephedrines, which were not followed up by the Medical Commission of NOC, the National Olympic Council of Asia,
10 and I believe about 10 or 12 were sanctioned because of the use of anabolic steroids.

Q. And those results, I'm sorry, are page 14 of that document I've just handed to you. Do you see that?

15 A. Yes.

Q. At the Asia games, out of the 585 samples, 20 samples were purported to contain substances of the banned classes, six ephedrines, one beta-blocker and twelve anabolic steroids were found in the screening
20 procedures and confirmed by additional analytical tests. So it looks like --

A. This is an analytical report, what the laboratory did. If you make the calculation, it specifies only 19. The additional simply was a quality control
25 sample introduced in the beginning.

Q. I see.

A. When there showed up so many positive samples in quotations, the Medical Commission of Asia decided not to introduce more quality control samples because the laboratory was --

Q. Well, what is your recollection of how many positive test results there were?

A. Twelve. When I look at this, twelve.

Q. Twelve on anabolic steroids?

A. All anabolic steroids, yes.

Q. And what about the other substances?

A. The athletes got a strong warning. They were athletes in concentrations, and the Medical Commission decided not to follow up these cases.

Q. All right, and what about the beta-blocker?

A. Also the beta-blocker, there was some explanation the Medical Commission of the Asian Games accepted. I don't recall which explanation was delivered by the nation concerned.

Q. All right. In Seoul, the total number of tests that were done, according again to this document that I have put in front of you, were 1,601 samples were taken in Seoul; so about approximately three times the number of samples taken in Seoul, compared to the Asian

Games?

A. Yes, about this.

Q. Sorry, three times the number of

samples taken in the Seoul Olympics compared to the Asian
5 Games in Seoul. Again, I don't know whether you would
agree or not that any conclusions can be drawn from this,
but in 1986 at the Asian Games with a third of the number
of samples, you indeed have positive findings for twelve
steroids, whereas in the Olympics with three times the
10 number, how many steroids were found in Seoul, looking at
Exhibit 229? Three Stanozolol. How many others are
steroids?

A. Three Stanozolol, yes.

Q. Is furosemide a steroid?

15 A. Furosemide is a masking agent or a
diuretic. Pemoline is a stimulant. Propranolol is a
beta-blocker and caffeine is also classed as a stimulant.

Q. So although you did three times the
number of tests in Seoul, you came up with what looks like
20 a quarter of the number of steroids as compared to the
Asian Games; is that correct?

A. But this is a calculation which is too
simple.

Q. Why?

25 A. Once more I must stress the point that

the population of athletes participating at the Asian Games and the Olympic Games is quite different. For example, I guess only 5 percent of the Asia population has been controlled at the time of the Olympic Games, because
5 in the overall performance, they will not come up to the first four rankings. So this comparison you are making is, from a scientific point of view, not acceptable.

On the other hand, most of these positive cases found in '86 once more were nandrolone and
10 methenolone. As far as I recall, only one -- were nandrolone and methenolone, and only one case of methandienone, Dianabol.

Most of these athletes found to be positive have been found to be positive in weightlifting, much to
15 the concern of the International Weightlifting Federation. As you may know, they introduced in 1986 out-of-competition controls two months prior to the weightlifting championships, and the Asian Games were part of this program. So the International Weightlifting
20 Federation initiated the selection of the athletes based on a random test basis by nation and by weight classes to get an overview how high is the misuse of anabolic steroids in this part of the world, and I remember exactly that the officials were disappointed, but it was a reason
25 to increase the frequency of out-of-competition testing in

weightlifting. So I cannot accept a comparison between Asian Games and the Olympic Games. These are two different pairs of shoes.

5 Q. I guess I'm left slightly confused, and that is that I thought that you had suggested earlier before the break that this problem doesn't really know national boundaries; but now what you are suggesting is that the Asian population is somewhat different from a worldwide population. Is that what I take from your
10 answer?

A. No. Why? I cannot follow.

15 Q. Well, I guess perhaps I didn't follow your answer carefully enough, but I thought what you were saying is that you can't compare the results at the Asian Games with the Olympic Games in Seoul two years later done by the same lab because you have two different populations of athletes. You've got worldwide representation at the Olympic Games with perhaps only 5 percent represented by Asian athletes.

20 A. Yes.

Q. Whereas in the Seoul Asian Games two years before, presumably the population is close to 100 percent Asian.

A. Yes.

25 Q. Right?

A. This is correct.

Q. So what you seem to be saying is that either the Asians are more predisposed to take steroids or they are easier to catch. I don't know what.

5 A. No, no. I cannot follow your argumentation.

Q. What is the difference between the Asian population and the world grouping?

10 A. It's a large difference. You have different nations. This I call, from a scientific point of view, a different population. Also you have a different population if you are looking in the ranking of the athletes of the different sports. For example, maybe one athlete having won the gold medal in weightlifting,
15 100 kilograms, he ranks in 15th or 18th place in the worldwide ranking. He will never be tested at the Olympic Games. So I have different populations out of at least two aspects. The athletes at the Olympic Games, they come from different parts of the world, and they
20 come, compared to the Asian Games, also out of different levels in the performance ranking.

Q. I understand.

A. Please, so once more, you cannot compare this.

25 Q. Okay, now I understand what you are

saying and I won't dwell on it, but again some of the evidence that we have heard here has suggested that the serious steroids users are at the elite international level, at the Olympic level, as opposed to a lesser standard of importance. If we were to accept that evidence, one would conclude that you would find less use of anabolic steroids at, say, the Asian Games as compared to the Olympic Games?

A. If you would have written to me that this is an issue of your Inquiry, I would have given a report, a detailed report what happened at the Asian Games because I was present at each meeting of the Medical Commission. They took this task very seriously. There you can also deduce some observation on the frequency and the other sources. For example, I recall that the positive cases stemming from one nation -- I do not remember if it was three or four -- they were all one sport and they were caused by one trainer coming out of a special country in Europe. So you could localize the source of these anabolic steroids as you did here in this Inquiry.

But to make calculations forecast out of these numbers, I can only tell you this is not possible. It's not justified because out of reason, I told you, the difference in the population participating there.

Q. Well, maybe we have to agree to differ, but I think the evidence that we've had here suggests that you can go anywhere in the world at a high performance level and find the problem. I'm having trouble
5 understanding from your evidence whether or not you agree with that or disagree with that?

A. I disagree in a lot of aspects of this, but I agree in some aspects of this.

Q. What about in the United States, for
10 example? Would you agree that the problem is endemic there?

A. Please, I have no information what are the results and indication of the situation in the United States. Please ask the USOC, not me.

Q. Well, I ask you because you are one of
15 the worldwide experts on this subject. Let me just read to you what Mrs. Pat Connolly, who was an American coach of the Olympic team, said before the Senator Biden Committee in the United States just a few months ago. She
20 said this:

"By 1984, out of a team of about 50 Olympians
[and she was referring to the women's
Olympic team of the United States] probably
15 of them had used steriods. Some of them
25 were medalists."

She goes on to say:

5 "Athletes, especially those who were opposed
to steroid use, afraid of their adverse side
effects or simply did not want to break the
rules of their sport, began to mistrust
official doping controls of the IOC, USOC
and TAC. Most Olympians knew of at least
one athlete who had used drugs and had never
been caught by testing. It became clear
10 that with the athletic's congress and the
USOC given the job of enforcing drug
legislation, drug use would only escalate.
It did. At least 40 percent of the women's
team in Seoul had probably used steroids at
some time in their preparation for the
15 games.

Hearing what the Russians and East
Germans were using had not had the impact on
me as did watching up close and personal the
20 masculinization of some of our best women
athletes."

Then she goes on and there is an exchange between her and
Senator Biden, and Senator Biden makes this comment.

25 "SENATOR BIDEN: Coach, [referring to Mrs.
Connolly] the fact that there are so many

women, and as I understand it, you said you thought on the 1984 American Women's Track and Field Team that you thought there were 15, roughly.

5 MS. CONNOLLY: Yes, it is an estimate, yes.

SENATOR BIDEN: It is an estimate. I realize that. Did that number, in your view, go up in 1988?

10 MS. CONNOLLY: Oh, yes. Oh, yes. It went up a lot. There is approximately 45 to 50 women on a team depending on how many alternates and relay people you want to take."

Then Senator Biden interjects.

15 "SENATOR BIDEN: Recently, Carl Lewis stated that he thought that five to ten gold medalists in men's track events at the Seoul Olympics were won by athletes who used steroids. Obviously you would not know with
20 any certainty, but do you think that is an outrageous estimate or do you think --"

And Mrs. Connolly says:

25 "MS. CONNELLY: I am quite familiar with the men's program and the men athletes. I am married to one who testified in 1973 about

5 this problem, so I know a little bit
 about it. I think Carl was low. If he was
 just talking about Americans, then he is
 probably accurate. But if you want to talk
 about the whole track and field program, his
 estimate was very low."

Then Senator Biden says:

"SENATOR BIDEN: What do you think, Evelyn?"

10 This is Mrs. Ashford, who is a well-known track athlete.
 She says that she is not in a position to say anything
 other than she says she knows of two, without pointing
 fingers.

"SENATOR BIDEN: Two medalists, gold
 medalists?"

15 American woman gold medalists using steroids that she
 personally knew of.

20 Now, I just invite you to comment on that.
 Would that accord with the kind of knowledge and
 information that you have developed over the years, being
 the person responsible in many respects for the doping
 control program of the IOC and the IAAF?

25 A. You are forgetting one issue. It is
 the issue that the Medical Commission of the IOC has
 authority only during the 14 days of the Olympic events.
 I regret this, but these are the facts. The authority to

control the athletes between the Olympic Games is clearly with the international federations and the national governing bodies. It is quite clear that with the dope control performed at an event, we cannot follow up the misuse of anabolic steroids prior to the event. How? More I cannot say. I do not comment the percentage. I have no data which will either support it or will be in the contrary. For me, the only solution to this, and not only until today, you know, is to enforce, to implement out-of-competition control.

Q. Very well. Then let me just ask you a question or two about the results from Seoul, Exhibit 229. In item 2, "Cases Discussed And Determined As Not Positive".

"Following discussion of an additional six cases reported by the laboratories containing a substance from a banned pharmacological class, the IOC Medical Commission decided --"

THE COMMISSIONER: What are you reading from?

MR. ARMSTRONG: Exhibit 229.

MR. ARMSTRONG:

Q. The IOC medical indication decided that

these cases should not be considered as positive.

I want to read to you a comment, a direct quote from Dr. Park, the head of the lab, as published in the New York Times on November 17th, 1988. Dr. Park, in regard to two of those six cases, said this:

"These were only gut feelings on my part, but in one or two cases, I was of the minority opinion. I thought the athlete had used drugs for performance enhancement. The majority overruled me."

I take it from that that there sometimes, as is indicated by your evidence, some controversy about whether or not an athlete should be declared positive or not and that that arose in some of these six cases?

A. First of all, I would like to make one point. Dr. Park, or the actual head of a laboratory, is not part of the decision-making process. He has no vote. He cannot be overruled. Nobody. The hearings or let's say the meetings of the Medical Commission of the IOC which normally on these cases, on the positive cases, will be discussed starting at 10 o'clock, the head of the analytical laboratories is called, and he is asked to provide the evidence. Not more, not less. This is an important factor, to have the evidence in these cases, the traces of the chromatograms and mass spectra, but he has

no vote at all. The decision is made case by case based on the evidence and the circumstances, and in all these six cases, except one case -- you mentioned Christie --

THE COMMISSIONER: Linford Christie.

5 THE WITNESS: -- the B sample was not

taken. All the other five cases, they were not cases of concern. The analytical reports on the A samples have been reported. The majority of the Medical Commission of the IOC was of the opinion that they should not be
10 followed up.

MR. ARMSTRONG:

Q. Well, for example, if we go back to my old friend testosterone and the ratio of 6 to 1, surely
15 Dr. Park's lab has to come to some determination of whether or not the ratio is above 6? You must have to get his opinion on that subject, do you not, because it's his lab that produces the results?

A. Okay, but I explained to you before,
20 the interpretation of the results is a little bit more complicated and the Medical Commission of the IOC, especially the Subcommission, explained these results different.

Q. In these six cases, we know that one of
25 the six was ephedrine in regard to Linford Christie. What

about the remaining five cases? What substances were they?

5 A. As you can see out of the summary report, two cases were in connection with a relative T/E ratio around 6. Four cases were ephedrines. I do not recall at this moment if they were, but I can check it, if they were ephedrine, pure ephedrine and not pure ephedrine.

10 Q. So four cases in the stimulant class, whether it's ephedrine or some other "drene"?

A. Related compound, yes.

Q. Then, too, in the anabolic steroid class, indicated by what you've just said, is a relatively high T/E ratio of around 6 --

15 A. Yes.

Q. -- and when you say around 6, was the T/E ratio higher than 6 in those two cases?

A. No. I explained, you know, it was based on our calculation, and you have to accept.

20 Q. Why do I have to accept it?

A. That the range as calculated before, the lower range was lower than 6. You cannot make your arguments on the mean. I explained to you that taking into consideration the standard deviation and the statistical factor, you will come to a range.

25

Q. All right. So you are saying that if they took the mean, it came to around 6, but applying the standard deviation, it dropped it below 6?

A. Yes, this is what I recall.

5 Q. Do you know what the figures were?

A. No.

Q. Is it possible that it was one of the those two testosterone tests that Dr. Park, although he didn't have a vote, disagreed with?

10 A. I do not know what is the basis of this article. The Medical Commission of the IOC decides on the spot, based on the information given by the laboratory and hard data.

15 Q. Is there any suggestion existing at the present time that this ratio of 6 to 1, that the IOC rule be changed to raise the number from 6?

20 A. No, we are considering to introduce more parameters in making the judgment if this rule was applied or not. As I explained before, the IAAF has not a fixed limit, and is even ready to act if a clear indication is there at a ratio of 5. The ratio of 5 -- sorry, the ratio of 6 was introduced to give a rule, but this is a different issue when we are looking from the point of science and statistics today.

25 Q. What are the other parameters?

A. Other parameters may be other ratios we are taking out of the steroids profile. I have tried to explain that the testosterone/epitestosterone ratio is nothing else than an intelligent interpretation of the steroids profile, and on the other hand, it's a rule which has been set for sport events, for sport federations, for the Olympic Games.

Q. This ratio of 6 to 1, I mean there is not much doubt that it was established at 6 in order, to start off with, to give the athlete the benefit of the doubt? I mean, it's placed fairly high, so that there is no doubt that if the athlete comes in at 6, he has taken testosterone, or above 6?

A. All right. You can compare this also with the quantitative limit. The Medical Commission of the IOC has set these limits. It is to cut off the tip of the iceberg.

Q. Then there was one other situation recently, and I don't know whether you are familiar with it or not, but there was a test of a Canadian hockey player at the World Championships in Stockholm and he was -- apparently it was indicated that he was positive for a drug called mesterolone. And then the next day when the B sample was tested it was found to be negative.

Were you in any way involved in that analysis?

A. Yes, I am in so far involved as first I myself as secretary was informed and later asked to review the data. And also the subcommission is asked to review the data of this special case.

I do not feel that I am in a position now to go further to this statement.

THE COMMISSIONER: Are you still reviewing it, Doctor?

THE WITNESS: It is a pending case. We are reviewing the document and may be I can add that I asked the laboratory to send the remaining portion of the B sample to Cologne.

It is like I explained in previous cases, my intention to see the traces in my own laboratory, compare it with our experience, and to get an idea. But this is premature.

MR. ARMSTRONG:

Q. And the original analysis at this World Hockey Championships in Sweden I assume must have been done at Professor Ljungqvist's laboratory?

5 A. No. Maybe I should explain the position of Professor Ljungqvist. He is professor for anatomy at the institute. He is not directly involved with the laboratory, but he is involved for the Swedish sport organization. And he is responsible for the
10 implementation of an out-of-competition program in Sweden, but he is not directly involved with the laboratory. This is a different department.

Q. Then you were able to supply us with a translation of the excerpt in the article that you wrote
15 in 1975 concerning doping control. And I am not going to read the whole translation with the German, original German attached to it, but at the conclusion of -- and we will file it.

At the conclusion of this article you say
20 from your rough English translation.

"My opinion is that in future the discussion should not concentrate if there will be a test for anabolic steroids or not, but when based on pharmacokinetical results and the
25 analytical possibilities a urine sample

delivered at the day of the competition will
allow retrospectivity of 3, 8, 14 or 21 days
but this retrospectivity is not sufficient
to fight against the misuse of anabolic
steroids, as positive effects may
persist even after several weeks or months.
A possible solution for international events
is to advance the entry date and organize
controls in regular intervals. At a
national level each federation having
problems with anabolic steroids should be
interested in controls before the
season.

Who seriously wishes to control anabolic
steroids in sport cannot avoid measures as
described above."

And I take it by that that you were saying
things similar to Professor Dugal as early as 1975, that
any serious approach to this problem must involve
out-of-competition testing?

A. I feel it is a logical consequence out
of the properties of anabolic steroids.

THE COMMISSIONER: Thank you.

THE WITNESS: And for scientists, I feel it
is self-understanding that they come based on the same

known facts to the same conclusions.

MR. ARMSTRONG: Can I mark that --

THE REGISTRAR: 230.

MR. ARMSTRONG: -- as 230.

5

--- EXHIBIT NO. 230: Translation of an article by
Manfred Donike.

10

MR. ARMSTRONG: Now, I realize that we are
under some time constraints to assist Professor Donike to
get away, but I did want to ask him about the future and
what his view as somebody who has spent a lot of time
considering this problem what his view would be in general
outline of an appropriate out-of-competition testing
program at the international level and here I would --

15

THE COMMISSIONER: Were you at Monte Carlo?
Were you at the meeting in Monte Carlo?

THE WITNESS: Yes.

20

THE COMMISSIONER: The proposal was set
forth there? Well, there were several proposals put
forth at Monte Carlo or am I wrong in that?

THE WITNESS: I have prepared a small speech
here.

THE COMMISSIONER: All right.

25

THE WITNESS: To get it in chronological

order.

THE COMMISSIONER: All right.

THE WITNESS: Before Seoul, there have been activities in introducing out-of-competition controls.

5 1982 European Council, a committee to prepare anti-doping charter, which was accepted 1984, and which was recently after a lot of other meetings extended also to out-of-competition control and is intended to get the "convention".

10 Convention in the European community means the law. The national -- each nation has to follow the laws then of the European community.

15 Then European Sport Conference. This is a conference where the European nations both from the western countries and the Eastern Bloc countries will meet each second year. They have established under I would say even the pleasure of Sir Arthur Gold a working group 1985, with the task to develop strategics to implement out-of-competition controls.

20 The first report was presented in 1987 to the European Sport Conference in Athens. And as early as that I think it is worth to report the Sport Ministers from the socialistic country agreed to introduce also for their countries internationalized out-of-competition controls under certain pre-conditions. This means

25

equality, no discrimination.

The final recommendation will be presented next or in two months beginning October.

THE COMMISSIONER: In Russia.

5 THE WITNESS: In European Conference in Sofia. I feel you are aware, you had discussion with Sir Arthur Gold. And he should have been in a position to present the final draft.

10 THE COMMISSIONER: Well, he discussed it with me, but it was not public, yet, so.

THE WITNESS: Yes, okay, but you should be aware --

THE COMMISSIONER: Yes, I am.

15 THE WITNESS: -- for your background information. Then the First Permanent World Conference was organized with substantial assistance by the Canadian government last year in Ottawa. And the outcome was an anti-doping paper, which was accepted first by the IOC at the session in Seoul. And second, at a session of the
20 Ministers of the UNESCO Sport Ministers in Moscow.

I should mention here the activities before Seoul of the international weightlifting federation. Since 1986, they are implementing an out-of-competition program which in the beginning covered only two months
25 before the world championship. This year they have

extended it with drastic sanction through the whole year.

Then there have been some bilateral and multilateral agreement especially in the Nordic countries involving Denmark, Norway, Finland, and Sweden.

5 After Seoul, there was as I mentioned before, this Sports Ministers Conference of UNESCO 1980 in Moscow. Once more declaration of the Sport Ministers of the Socialistic countries, November 1988. And the ANOC Conference 1988 in Vienna. ANOC, this is the Association
10 of National Olympic Committees.

 You may be aware that the Medical Commission or better say the IOC was asked in Moscow as well as in Vienna to take over the lead in out-of-competition control. And I feel this is an encouraging sign that some
15 authorities depend on the IOC and its Medical Commission. And it is I think also good acceptance of the work we did in the past.

 The IAAF discussed the out-of-competition control in Goteburg. As far as I remember it was April
20 this year. And the paper will be prepared so that it can be accepted and first discussed and secondly accepted at their next session in Barcelona September this year.

 You are aware of the USOC-USSR bilateral agreement on implementing out-of-competition control.

25 And you are also aware that there have been

made or have been achieved the first agreement for the prevention of doping in sports between the IOC and the International Summer Sports Federation.

THE COMMISSIONER: Which one was that?

5 THE WITNESS: This was May, end of April, at joint meeting between the IOC executive board and the Organization of International Summer Olympic Federations. I am sure it was mentioned by Mr. Pound in --

10 THE COMMISSIONER: I don't recall that one. The rest of them I am familiar with, but not that one. I will check it, thank you very much.

THE WITNESS: Yes. The next steps will be there will be the session of the IOC in Puerto Rico with meetings of the executive committee of the IOC.

15 There will be the next Sports Conference, European Sports Conference beginning of October. And there will be the second conference of the Permanent Conference on Anti-Doping in Moscow, the follow-up conference from Ottawa.

20 In Ottawa the resolution was accepted, and as far as I recall, this resolution was accepted world wide, no major modifications have been made.

25 What is missing, these are the annexes which are necessary to implement a worldwide out-of-competition controlled system. We are working in a small group to

prepare these annexes. They will be reviewed in about 14 days from now. The material will be presented to the invited persons for Moscow. It will be presented to them earlier.

5 THE COMMISSIONER: In Moscow. Yes.

THE WITNESS: It will be made available as far as I have understood the first or second week of September. And I am sure there will be no objections to provide also the Commission with a copy of this paper.

10 THE COMMISSIONER: All right.

THE WITNESS: Even prior to the conference.

THE COMMISSIONER: All right.

15 THE WITNESS: Because these annexes, they are discussed. The annexes regarding out-of-competition control, they are following the basic principles of the dope control procedures of the Medical Commission of IOC for the Olympic Games.

THE COMMISSIONER: Thank you. All right.
Is that it?

20 THE WITNESS: Yes.

THE COMMISSIONER: Thank you, very much.

25 THE WITNESS: Thank you. Maybe I should add if you allow one comment, the -- it is intended to install a system which will allow wherever it is to control any athlete on short notice.

THE COMMISSIONER: All right. Thank you.

MR. ARMSTRONG: Then, finally, I will agree, and it will be helpful to have among our papers, to file as an exhibit the paper that Professor Donike referred to prepared by him and others for the meeting in Monte Carlo 1989 headed Long Term Influence of Anabolic Steroids Misuse on a Steroid Profile and ask that that be marked as the next exhibit.

THE REGISTRAR: 231.

--- EXHIBIT NO. 231: Paper prepared by Dr. Donike entitled "Long Term Influence of Anabolic Steroids Misuse on a Steroid Profile"

MR. ARMSTRONG: Those are all the questions I have, thank you.

THE COMMISSIONER: All right. Mr. Barber.

MR. BARBER: No, thank you, sir.

THE COMMISSIONER: What are Dr. Donike's travel arrangements? What time is he to leave here?

MR. BARBER: He is booked on a plane at 7:50 leaving for London and Dusseldorf.

THE COMMISSIONER: Pardon?

MR. BARBER: Leaving for London and

Dusseldorf.

THE COMMISSIONER: Mr. Sookram, do you have any questions?

MR. SOOKRAM: Yes, sir, very briefly.

5 --- EXAMINATION BY MR. SOOKRAM:

Q. Professor, my name is David Sookram, I represent the interests of Dr. Astaphan.

I take it, sir, that you were following the evidence up to a point and that you heard that Dr.
10 Astaphan testified that he had been giving Mr. Johnson Furazabol. Did you know that?

A. Yes, I know I am aware of this.

Q. All right. Now, am I right in saying, sir, that the International Olympic Committee never tested
15 for Furazabol before the Olympics in '88?

A. Furazabol I must say was never a substance of concern in the field of anabolic steroids.

Q. All right. Now, you did tell us, sir, that you had got, after the Olympics, the B sample from
20 Mr. Johnson. Did you test that for Furazabol?

A. Yes.

Q. What did you find?

A. Nothing.

Q. Nothing. Is it possible, sir, that Mr.
25 Johnson could have been using Furazabol before, but that

his endocrine secretions had returned to normal before the Olympics in Seoul?

You can't say one way or the other, can you?

5 A. No, it is we have not available urines demonstrating that -- or the normal endocrine profile of Mr. Johnson except the urine we have from Zurich. And there we can take no conclusion out.

10 Q. Yes. The retrospectivity as I understand it, sir, from the graphs that you showed us there would sort of disappear or would not be traceable within six weeks or at maximum 12 weeks?

15 A. Yes. If you take the results from Zurich -- you have to understand these results so that prior to Zurich may be eight, about eight weeks, in a certain range no steroids have been applied.

THE COMMISSIONER: But if the graph is a valid one, it indicates that between Zurich and Seoul anabolic steroids have been taken.

THE WITNESS: Thank you.

20 BY MR. SOOKRAM:

Q. But no conclusion as to whether or not Furazabol was taken?

A. No, no indication.

25 THE COMMISSIONER: I am sorry, I don't

understand that. I thought you said the urine did not show Furazabol.

THE WITNESS: Yes. The retest in Cologne shows without any doubt no Furazabol, but the results from Seoul and Cologne show Stanazolol metabolites, and the endocrine profile is consistent with a claim that, I say in quotation anabolic steroid, has been applied end of August. And out of metabolites, we found -- we concluded that the application was not Furazabol, but Stanazolol.

MR. SOOKRAM:

Q. But you see, sir, we have heard no admission from Dr. Astaphan here that he had prescribed Stanazolol at any time. Mr. Johnson himself didn't tell us that he took Stanazolol, and no -- none of the evidence we have had here whilst I was here indicated to us in any way that Mr. Johnson had taken Stanazolol?

THE COMMISSIONER: Mr. Sookram, don't say that. We will argue that. You may have overlooked very significant evidence.

MR. SOOKRAM: I may have.

THE COMMISSIONER: Or not appreciated the significance of it.

MR. SOOKRAM:

Q. Is there any reason, sir, why none of the testing bodies had been looking for traces of Furazabol before 1989?

5 A. There is one reason, I can explain it to you. Since 1982, I collect reports of athletes, trainers which will be made available on steroids on the black market or on steroid programs which appear in the underground literature or however you want to call this.
10 And the name Furazabol never appeared on any list which is in my possession.

THE COMMISSIONER: It's made by Daichi in Japan and it has not been injectable for years. And it is made for the Japanese market only, I think.

15 THE WITNESS: Yes, it is correct. Also it is provided in tablets one milligram --

THE COMMISSIONER: Only in pill form.

THE WITNESS: In pill form tablets, one milligram per dose. And as you may find out, milligram
20 doses are not the doses athletes are looking for.

THE COMMISSIONER: One milligram dose you mean injectable?

THE WITNESS: No, I don't -- no, no the tablets, one milligram.

25 THE COMMISSIONER: Yes.

THE WITNESS: If you want to get an effective dose to be supposed around 25 milligrams a day you have to inject 25 tablets, you know. It is not very convenient.

5

BY MR. SOOKRAM:

Q. That was the only reason why the associations were not concerned about Furazabol?

10

A. The reason was the practicable -- the practicable non-availability of this drug.

MR. SOOKRAM: Thank you very much, sir.

THE COMMISSIONER: Mr. Pratt.

15

MR. PRATT: Mr. Commissioner, I have a somewhat serious difficulty at present, and that is I would estimate in my, I think more or less usually accurate way, that I have got about half a day's worth of matters that I would like to deal with.

THE COMMISSIONER: Pardon?

20

MR. PRATT: I would estimate that the matters that I would like to deal with Professor Donike would perhaps take a couple of hours or half a day. And we clearly don't have that.

THE COMMISSIONER: Right.

25

MR. PRATT: It is somewhat unfortunate that he was in the hearing room for the better part of two days

while Professor Dugal was testifying. And I appreciate the seriousness of his obligations in Europe, but I am at something of a difficulty in knowing how to most effectively proceed.

5 THE COMMISSIONER: Well, excuse me, can we just take a short break and I will speak to Mr. Armstrong and yourself. It will just be two minutes.

--- Short recess.

10 --- Upon resuming.

15 THE COMMISSIONER: Mr. Pratt, Mr. Bourque has just a couple of questions. Would you mind deferring to him for a minute because he is going to be short, S-H-O-R-T.

--- EXAMINATION BY MR. BOURQUE:

20 Q. Professor Donike, my name is Bourque and I represent the Canadian Track and Field Association. And I just wish to ask you a few questions about one of the perhaps more technical areas you testified concerning this morning. And you stated that the international federations, and I assume by extension you would agree the national federations could perhaps make use of your
25 endogenous steroid profile for two purposes, one being to

use the profiles as a prerequisite to participation in championships or on national teams. And the other being to use it in conjunction with out-of-competition testing. And I do not believe you elaborated much on the second
5 alternative.

Can you explain for us how you expect that profile would be used to augment out-of-competition testing? Could it be used, for example, in selection selection of the athletes to be tested?

10 A. I assume that in the future there will be an out-of-competition testing. As I explained where any athlete is subject to be tested at any time on the short notice, and I can also assume that -- and there are some models which have been developed that there is a
15 cross-section testing. And in this cross-section testing, let's say IAAF, they will take all the athletes participating in one, two, or three events and ask them, okay, four weeks or six weeks whenever the entry date is, please, you have to be there, provide a urine sample, we
20 will analyze, and we will tell you if we will allow you to participate or not.

THE COMMISSIONER: If they don't pass your endocrine profile, then they would not be able to participate would that be the --

25 THE WITNESS: Yes, if there are serious

deviations from the norm, and this can be established by subsequent tests where I see a good chance to use this as deterrent. I may --

5 THE COMMISSIONER: Also it might indicate, even if there is -- would that be it? It would be a urine sample for all purposes before at that stage, not just for the profile? YOU would ask the athlete to supply a sample.

THE WITNESS: Yes.

10 THE COMMISSIONER: And all the testing would be done then including a profile, right?

THE WITNESS: Yes.

MR. BOURQUE:

15 Q. Yes. I am not quite clear from your evidence this morning, can you tell us is one sample sufficient to establish a profile for an athlete or would you have to take a number of samples over a period of time?

20 A. It will be much more significant if we collect profiles from an athlete over his career. And once we have filed a profile, it is really as confident as a fingerprint, we can follow up deviations of this. But this must be included in a rule.

25 Q. Well, I understand that for the

purposes of scientific exactitude one might wish to take samples and test them over an entire career, but in order to establish a profile for practicable purposes, what is the optimal period over which samples need to be taken in your view?

A. We have to go back and ask ourselves what we want to achieve of out-of-competition test. We want that an athlete prepares a major championship or during his career will not use anabolic steroids. And we have to implement this by a lot of controls, out-of-competition test. And this, as I explained, steroid-profiling technique is a method, a possibility, to extent the retrospectivity.

Q. I understand, but can you not tell me how many tests and over what period of time is minimally necessary to establish a profile upon which one could then with reasonable concern over the athletes' rights possibly base a suspension?

A. It is depending on the deviation of the norm. If the deviation from the norm is large, by order of magnitude a factor of ten and we have several parameters not only what I showed to you the Androsterone-Etiocholanolone, the whole steroid profile consists of a lot of steroids. Then we can conclude with a high statistical probability that this steroid profile

looks as it looks because anabolic steroids have been applied in the past.

Q. You also stated this morning that in the past 10 to 12 years you could think of three or four cases where the B sample provided by an athlete yielded different readings than that athlete's A sample had yielded. And can I ask you what types of different readings were these and what reasons did you attribute as being the source of the discrepancy?

A. I do not recall all occasions. One occasion I recall very well a German famous cyclist was involved and there the conclusion was that it was manipulation at the stage of the sample collecting.

Q. I see. So, that discrepancy didn't operate to exonerate the athlete?

A. Pardon?

Q. So, in fact, the testing procedure was not called into question in that particular case, was it?

A. No, it was more or less the sample-taking procedure and the security at the sample-taking procedure.

Q. Fine, in the other three cases, two or three cases, was the discrepancy between the B sample and the A sample such as to call into question the exactitude of the testing procedure?

5 A. No. Also when I consider the pending case, if you take into consideration that over the last years, I would guess now, based on the figures we have out of the last statistics, some 100,000 analyses have been performed. You must take it as given that from time to
10 time one analysis cannot be reproduced. This is not a serious concern. You have to live with errors wherever you are working, and it's the goal of the subcommission to exclude errors.

Q. In the IOC testing procedure that
15 exists now, is there provision for the athlete to insist that his B sample be tested at a different lab?

A. No. It is clearly stated it should be tested in the same lab.

Q. What is the reason for that
20 requirement?

A. There are a lot of practical reasons to perform the analysis in the same lab. The rights of the athlete, it is the opinion of the Medical Commission of the IOC, are respected by allowing that the athlete
25 himself and an expert of his choice is present at the time

of the second analysis.

Q. Well, if it is in fact the choice of the athlete and if the B sample can be split and examined at the initial lab and a second lab, do you see any
5 objection to part of the B sample going to a second laboratory at the athlete's insistence?

A. I would not like this procedure because out of experiences. There have been made a lot of not so encouraging observations. I would prefer to stay with the
10 system as it is, and I have explained it in a lot of lectures that the position of the laboratory within the sequence of the dope control is the position of a neutral, independent institution providing the results based on scientific grounds.

15 Q. Dealing with objective techniques, rendering objective conclusions; is that not correct.

A. Not only objective techniques, but also reviewable techniques.

20 Q. So may I ask, on that basis, what would be the objection you would mount to an athlete being allowed to take part of his B sample to another lab, even assuming it's another IOC accredited laboratory?

A. As long as it's an IOC accredited laboratory, there are no principal objections except for
25 reasons of practicability. But on the other hand, not

part of the B sample, when you know the B sample is not touched and not opened.

Q. Well, that could easily be gotten around by dividing the sample into two B samples at the collection stage, would it not?

A. No, I don't like this idea. There have been many experiences years ago in dividing collected urine samples into three parts, A-B-C, and you never can control such a system.

Q. Why not? If you can control a system which divides a sample into two parts, why not a system that divides a sample into three parts?

A. It's a question or a matter of experience once more. If you set up a system, what is more complicated, you will have the chance at more mistakes, and errors will occur.

MR. BOURQUE: Thank you, Professor. I have no further questions.

THE COMMISSIONER: Thank you.

Mr. Pratt, I appreciate your cooperation. If you don't mind, Professor Donike, we're trying to get you free to get back to Germany. Mr. Pratt is going to carry on for awhile. Anything untouched will be submitted in writing, and Mr. Barber has undertaken that there will be answers in writing.

THE WITNESS: Okay, thank you.

--- EXAMINATION BY MR. PRATT:

Q. My name is Al Pratt. I guess you know
5 who I am by now. We've been sitting together for several
days.

Would you agree with me that you are
probably the most eminent person in the area of doping
control in sports in the world today?

10 THE COMMISSIONER: You don't have to answer
that question if you don't want to.

MR. PRATT: Immodesty is permitted in this
room. At least it has been so far.

15 THE WITNESS: I would not like to answer
this question.

MR. PRATT:

Q. But you are responsible, according to
your own evidence, for many of the current techniques of
20 sample collection and testing and analysis that are now
used around the world at the highest level of sport
competition?

A. That is correct.

Q. You've told us that you developed many
25 of the leading tests, including the testosterone/

epitestosterone ratio, and I could name some others, and you have an extraordinarily impressive C.V. which we've been through.

5 Would it be fair to say that the future and the validity of future doping control endeavors by the IOC and other senior organizations at the world level of sport will depend very much, sir, upon your assistance and experience?

10 A. No, I do not think that this will be fair because I feel that a lot of colleagues in our laboratories and also colleagues cooperating at different levels will be able to follow this up. I do not expect or I do not want to say that I'm the only expert.

15 Q. Well, I won't belabor it. I'm trying to pay some compliments.

 A. I know.

 Q. Who owns the laboratory in Cologne where you work, sir?

 A. This is the University of Cologne.

20 Q. Do you have any ownership yourself, sir?

 A. No.

 Q. The endogenous steroid profile you've been talking about for the last day or so, I think I'd
25 like to begin by getting some terminology straight, if I

might. Is that an appropriate term to use for the approach that you have been describing, "endogenous steroid profile"?

A. Yes.

5 Q. Would that be different from what is sometimes called an "endocrine profile"?

A. These are different expressions for the same approach. I would prefer, when I am correct, the expression "endogenous steroid profile", but I'm not quite
10 aware if I am always consistent in using the two adjectives.

Q. I see. I wonder if we might in somewhat more detail, and you may have been through this and I hope we can just simplify it and clarify it, what
15 elements you consider to be relevant in this new test? As I understand it, you've referred to the epitestosterone level, the testosterone level, and the ratio of two other -- now I'm going to get into trouble here because they are two other subcomponents or metabolites of
20 epitestosterone, those that appeared at the top left-hand corner of the various slides that you've been showing us.

A. Okay. Maybe for convenience we can agree that we name both substances A & E. A stands for androstolone and E, etiocholanolone.

25 Q. All right.

A. The inference we observe when anabolic steroids has been applied are, in principle, the following: First, a dramatic reduction of the concentrations which we can observe after several days of anabolic steroid application or after injection of a relative large dose of an injectible form. This is the decrease of --

Q. This is the decrease, sir, in both epitestosterone and testosterone?

A. Both substances are decreased.

THE COMMISSIONER: You are talking about A & E, then?

THE WITNESS: And A & E also, as we have seen this morning in this display, if you take the average, the mean, you can roughly say that under the influence of 30 milligrams of methandienone, an equivalent dose, the endogenous production will be reduced by an effect of 10.

MR. PRATT:

Q. So that with regard to A & E, the ratio between the two changes, the way I understand it --

A. This is an additional parameter.

Q. And the overall gross amount also decreased?

A. Yes, both.

Q. Apart from testosterone/
epitestosterone, A & E, is there anything else that you
look at in this test as it is currently constituted?

5 A. Yes, we are monitoring more endogenous
steroids. For the sake of understanding, I didn't mention
this and didn't produce the data. If you want, I can name
them, which we are routinely monitoring since years, and
where we have the data available.

10 Q. I guess, sir, what I'm trying to find
out is whether -- they are relatively simple, and I found
a relatively simple description of these four substances
which we were discussing this morning -- whether that is
an oversimplified version of a more sophisticated test,
15 and if so, what the additional elements might be?

A. Additional elements may be other
endogenous steroids which can be easily monitored in the
same procedure --

20 THE COMMISSIONER: I'm sorry, what did you
say?

MR. PRATT: Other endogenous steroids.

THE WITNESS: Other endogenous steroids.

THE COMMISSIONER: For example?

25 THE WITNESS: 11-hydroxy-androstolone;
11-hydroxy-etiocholanolone. But also in monitoring this,

we can go in the training period, also taking a blood parameter. As it was demonstrated by Professor Dugal presenting data, the depression of the endocrine production --

5

MR. PRATT:

Q. Now let me just stop you there.

Endocrine production means what, in terms simple enough for all of us to understand?

10

A. The production of the natural hormone anti-body you produce.

Q. I see. Is this part of the endogenous steroid profile, or is this something in addition to it?

15

A. The steroid profile, by definition, is the ratio of the different natural or endogenous steroids, one to another.

20

MR. PRATT: I believe Mr. Armstrong just tabled an exhibit. I don't need to see it, but I understood it to be written for the recent Monte Carlo Conference. I just would like to ask some general questions about its content.

THE COMMISSIONER: Have you got one for the witness?

MR. ARMSTRONG: Yes.

25

MR. PRATT:

Q. I see on the first page you conveniently summarized the paper, and perhaps I can look at the summary of the summary at the bottom of the page and use that. The first point is the concentration of endogenous steroids in urine is decreased. Now we've just covered that. That's epitestosterone/testosterone and the additional endogenous or natural-occurring steroids you've just mentioned.

The second point, another effect observed is the change of the endogenous steroid profile, eg., the changes of the ratios of isomeric steroids like CIS-androstolone and etiocholanolone. Those are the A & E we've just been speaking about.

The third point is the decrease in concentration and the shift of ratios can be observed even if the exogenous anabolic steroids can no longer be detected in the urine.

Essentially the test you are proposing does not include any other endocrine studies or analysis. It's simply limited to the endogenous steroids and their relative ratios?

A. Yes.

Q. Now Dr. Dugal yesterday was -- before I get to that, I understood you to say that this test

depends upon the mechanism of bio-feedback, that I take it exogenous steroids interfere with the production of endogenous steroids, and over a certain period of time, certain patterns can be detected?

5

A. Correct.

10

Q. Dr. Dugal, in his introductory evidence about the mechanism of anabolic steroids also talked about bio-feedback, and he mentioned two hormones which I took to be extremely important in the endogenous production of steroids, namely FSH, or follicle stimulating hormone, and LH, or luteinizing hormone. Would it not be an essential part of this type of approach to look also at those endogenous endocrine hormones in order to validate this type of an approach?

15

A. This is a good supplement of this test, and I may express this, that there are other changes when we make this, for example, as a prerequisite for participating at the world championships, and there is an appeal to this, we can then go into blood and monitor these kind of hormones.

20

Q. Have you used any type of analysis in those types of hormones in relation to the samples of Ben Johnson, which you have in your possession?

25

A. No. You should be aware of the fact that at the occasion of the Olympic Games or at the

occasion of dope control, only urine will be asked for as a sample.

Q. Do those hormones not appear in the urine?

5 A. LH, yes, FSH also, but it is depending on some factors if these concentrations will be reduced in the urine or not.

Q. Are you aware, sir, of Dr. Tony Miller, who I believe is an Australian doctor? I believe he's
10 been in charge of the doping control for the Commonwealth Games in the past, among other things there?

A. No.

Q. It's my information that Dr. Miller was the Medical Director in Australia for a number of years
15 and that he testified before a similar inquiry in Australia that those two hormones are crucial to any test which would detect long-term endocrine profiles as a means of detecting anabolic steroid use. How would you feel about that comment if in fact it were made?

20 A. I have not any data which will --

THE COMMISSIONER: I am sorry, what do you say is essential?

MR. PRATT: My understand is that his evidence was that the follicle stimulating hormone and
25 luteinizing hormone were crucial components of any

long-term endocrine profile test in relation to anabolic steroid use. I was asking him for -- I appreciate that the doctor is unaware of this statement, but I'm asking for his comment upon it.

5 THE COMMISSIONER: Of course he knows these two hormones.

THE WITNESS: Yes, okay, but out of the mechanism, it is to be expected that also these two hormones are decreased and that these levels are low, but I have no information at this time, available data, which will validate such a claim.

10

MR. PRATT:

Q. You've done some studies, and I believe you showed us some evidence this morning of the time it takes for A & E to revert to normal levels after the administration of anabolic steroids. Do you have any tests or any evidence to give, sir, on the other side of that? How long does it take following the ingestion of anabolic steroids before these endogenous steroids to become abnormally depressed?

15

20

A. We have made some excretion studies some years ago, and the result of these excretion studies I can summarize, that after ingesting, after oral application of 30 milligrams of Dianabol, the endogenous

25

production was reduced by a factor of ten within eight days. One day or two days application were not sufficient to reduce the endogenous production. It took some days.

THE COMMISSIONER: You take some days of
5 taking the drug or just some days for it to react? You need to take it for over eight days, or is it after eight days?

THE WITNESS: These were our observations in a controlled study made on volunteers.

10 THE COMMISSIONER: I'm sorry. Does that mean that the patient was taking drugs for eight days, or he took it and eight days later began to have the impact?

THE WITNESS: Yes, you can draw a curve, you know, but the reduction after two days, it is not very
15 significant.

THE COMMISSIONER: I'm sorry, but it's my fault, I'm sure. The patient takes a drug on day 1.

THE WITNESS: Yes.

20 THE COMMISSIONER: Does he only take the one dose?

THE WITNESS: No, sorry. 30 milligrams Dianabol daily.

THE COMMISSIONER: For eight days?

THE WITNESS: For eight days.

25 THE COMMISSIONER: I see.

THE WITNESS: And then after eight days,
you are done.

MR. PRATT:

5 Q. Perhaps I could just turn to the
specific examples that you showed us this morning. You
showed us the profile of Mr. Johnson based upon the Zurich
data and the profile of Mr. Johnson based upon the Seoul
data. Now according to the evidence here, which of course
10 you can't verify, Mr. Johnson last took Stanozolol or I
should say he last took an anabolic steroid --

A. Estrogol.

Q. -- estrogol approximately two months
before the Zurich meet and approximately one month before
15 his test or 24 days, between three and three weeks before
the test in Seoul. Now you told us that the endocrine
profile or I should say the endogenous steroid profile in
Zurich was normal but a little suspicious, and you told us
the endocrine or endogenous steroid profile in Seoul was,
20 I shouldn't put words in your mouth, but I took it that
you took it to be rather conclusive evidence of ingestion
of steroids. Would you say, sir, that those two graphs
are consistent with that evidence and the timing of
ingestion of steroids?

25 A. Yes.

Q. But three weeks, almost four weeks after the last ingestion of an anabolic steroid, it would be depressed to that degree?

A. You must consider that in Seoul, we
5 still found an appreciable amount of Stanozolol. So you can conclude, out of the concentration of Stanozolol, that there was enough Stanozolol in the system to suppress.

Q. That was actually my next question. You didn't mention in your evidence-in-chief, sir, whether
10 Stanozolol itself was found in the sample. I take it you are now saying that Stanozolol itself was in the sample?

A. It was in the sample, but what was detected and identified in Seoul at the occasion of the Olympic Games, that there were two metabolites, normally
15 named M-1 and M-2.

Q. Was Stanozolol detected at the time of the test in Seoul?

A. No, we reanalyzed the sample, as you were aware, in Cologne and then we went in the conjugated
20 fraction with the first aim to check for Furazabol.

Q. But in the retest, I take it you've just told me Stanozolol in its intact form was found in the sample?

A. Yes.

25 THE COMMISSIONER: In Cologne?

THE WITNESS: In Cologne, yes.

MR. PRATT: In Cologne.

THE COMMISSIONER: The substance itself was found.

5 THE WITNESS: The substance itself which is present in the urine --

THE COMMISSIONER: In Seoul, it was only the metabolites?

10 THE WITNESS: The reason is in Seoul, the laboratory checked only for the free fraction. In Cologne, we checked for the metabolite or the metabolites of Furazabol, and so went also in the conjugated fraction. In addition, naturally I was interested to get the steroid profile of this sample and our Cologne --

15 THE COMMISSIONER: But I gather what you said before that it's not necessary to have the substance in your system to have this profile as a depressed one?

20 THE WITNESS: Okay, this is correct, but on the other hand, you can conclude that as long as there is measurable --

THE COMMISSIONER: As I understand it, when you start taking the substance, it takes a while for it to build up to normal?

THE WITNESS: Yes.

25 THE COMMISSIONER: So you got rid of it for

some time, and you are still going to have a depressed ratio, depressed profile; is that what you said?

THE WITNESS: Yes.

THE COMMISSIONER: So you don't need the substance in your system, otherwise you wouldn't need this
5 test. If you find the substance, you don't need the test?

THE WITNESS: Okay, but you should take into consideration that this determination of the steroid profile is combined with the test for conjugated anabolic
10 steroids.

THE COMMISSIONER: I see.

THE WITNESS: So we have both parameters together.

THE COMMISSIONER: But I assume from your
15 whole thesis that you are trying to address the issue as to how do you find out whether somebody has been taking anabolic steroids during the training period and stop taking them in time enough to have a negative finding at the Seoul Olympics, and yet there are many, many cases
20 where that's been so. I thought what you are trying to find is an alternative way in a case where there is a negative finding, otherwise you wouldn't need it.

THE WITNESS: I would like to modify this a little bit. It is not an alternative way. It is an
25 additional way.

THE COMMISSIONER: Well, I missed the point. It's my fault. I thought that in this particular case, when you are satisfied that there are two metabolites of Stanozolol in the system, that would be enough to disqualify the athlete by itself?

THE WITNESS: Yes, I think this was clearly expressed.

THE COMMISSIONER: You don't need this profile at all?

THE WITNESS: No.

THE COMMISSIONER: You mentioned this case because of the allegation of some misconduct by somebody else, but I thought you were developing this thesis to take care of a situation where although the analysis indicates a negative finding of a metabolite or a substance, there is a suppressed profile to such an extent that you say that although he's clear today for the substances, metabolites, that satisfies me that he was on steroids some time before?

THE WITNESS: Correct. This is what I call extending the retrospectivity.

THE COMMISSIONER: But you wouldn't have to look at that profile if you had a positive finding?

THE WITNESS: Yes, correct.

MR. PRATT:

Q. By the time you retested the B sample in Cologne, the sample was a number of months old, obviously. Would there be any alteration in the chemical composition of the sample over that period of time?

A. You can never exclude this, but the alterations are not very significant, to the best of our knowledge. When I compare the results the Seoul laboratory has obtained on the free fraction first and on the conjugated fraction regarding the steroid profile, which I filed here as exhibits, I can conclude that within the limits of the analytical errors, the findings, these analytical findings are consistent.

Q. Well Stanozolol, I take it, is a relatively large molecule?

A. No, it has a normal molecule weight, as far as I remember, around 300.

Q. Would it not be more likely that the metabolites of Stanozolol to degrade over a period of time if it were stored improperly, degrade into its components?

A. I have shown the evidence that it
5 didn't degrade.

Q. Well, sir, with respect, in Seoul the sample was not tested for the intact molecule. You only discovered traces of Stanozolol when it was retested a number of months later. And I take it - this is new
10 evidence, I take it, sir, that if it had been tested in Seoul for the molecule of Stanozolol in its intact form rather than its metabolites, you might have been in a better position in September to determine what concentration of Stanozolol itself was in the urine of Mr.
15 Johnson?

A. The question of concentration when there is analytical positive finding for banned substance is of no importance.

Q. Well, sir --

A. We will bend any effort on any trace of
20 anabolic steroids when the laboratory has been able to produce the necessary mass spectrometric data.

Q. I understand that, sir --

A. It is not a question of concentration.
25 It is a question of the evidence regarding --

Q. I understand that, sir --

A. -- regarding the identification.

Q. Professor, you received extensive
argument from Mr. Pound, and you were told by Mr. Johnson,
5 that it was possible that Mr. Johnson had received an
administration of this substance without his knowledge
shortly prior or after his race.

I suggest to you, sir, that it would have
been open to you in Seoul to test the sample, the B sample
10 or the A sample, to determine what level of Stanozolol was
present at that time. And that might be a very relevant
factor in determining whether the administration of
Stanozolol had taken place at the time of the race or some
substantial time prior to the race.

15 I suggest to you that wasn't done?

A. I see not your point. The rule say
that no trace, identifiable trace, of a substance should
be present or its metabolite or metabolites.

Q. What role, sir, did your endogenous
20 steroid profile play in the ultimate decision of the
Medical Commission?

A. No role at all. The steroid profile
was put forward by me when in the hearing or in the
meeting at 10 o'clock at night the Canadian delegation
25 repeated the allegations. The steroid profile, I can make

this I hope clear, would not have been mentioned by me at all when these allegations have not been repeated.

Q. Who was it who actually met to make the decision as to what was going to be recommended to the IOC Medical Commission regarding this test?

A. Which test, may I ask?

Q. Mr. Johnson's test?

A. To the medical --

Q. The B sample, sir.

THE COMMISSIONER: After the B sample.

MR. PRATT: Who was it that decided, that's all I am asking.

THE COMMISSIONER: What did you actually do after you got the results of the B sample?

MR. PRATT: There were submissions by Mr. Pound in Seoul --

THE COMMISSIONER: Mr. Pound was appealing at that stage. Mr. Pound had a right of appeal at the finding.

THE WITNESS: I am sorry, I do not understand what you really mean. Please can you repeat your question.

MR. PRATT:

Q. What I am trying to find out is who

made the decision as to what was going to be done with regard to this test, whether it was following or before Mr. Pound's submissions?

5 THE COMMISSIONER: Well, Mr. Pratt, it was as a result of the conclusion of the Medical Commission first of all that there was a positive finding, that you had the right of appeal. Isn't that what happened? Mr. Pound's presentation was by way of an appeal? Are or we all mixed up now?

10 MR. PRATT: I understood --

THE COMMISSIONER: What had happened you got the report, you got the B finding, you got a B finding and that's reported by Dr. Park, I guess, or were you there yourself?

15 THE WITNESS: I was in the laboratory until the second aliquot of the B sample was analyzed. It is in the files. As far as I recall, it was about 8, 8:30.

THE COMMISSIONER: Yes, I thought you said you didn't wait around until -- well, I thought you told
20 us you didn't wait during the test.

THE WITNESS: No, during the B sample I was during the whole time in the laboratory.

THE COMMISSIONER: You were there during the whole time. What happened exactly after that then?
25 You got the finding, you analyzed it.

THE WITNESS: Then I went to the meeting.

THE COMMISSIONER: Right. What meeting?

THE WITNESS: Meeting of the Medical
Commission of IOC, which was convened --

5 THE COMMISSIONER: Right.

THE WITNESS: -- and the Canadian delegation
was invited. Dr. Park arrived also at the beginning of
the meeting.

10 THE COMMISSIONER: Well, Mr. Pratt was
asking I guess at that stage whether there had been any
recommendation to accept the finding. I am not quite
clear.

MR. PRATT:

15 Q. I understood, sir, that Mr. Pound
commenced his submissions, during his submissions the
result of the B sample was disclosed to him. He continued
his submissions, and then I suppose it is the
subcommission then went and met in-camera, came back and
20 made a recommendation which was then in the morning made
to the IOC, or, I am sorry, the Medical Commission made a
recommendation to the IOC in the morning.

What I am simply asking is who participated
in that decision by the Medical Commission?

25 A. This decision, you must separate the

decision, urine sample positive with Stanozolol. This was made clearly by the whole Commission.

The result which was presented to Mr. Pound and to the delegation, this was as a result of the steroid profile. And this result was presented by me to the whole Commission in the presence of the Canadian delegation to stop the allegations.

Q. Was Mr. John Holt there, sir?

A. Yes, he was there as a representative of IAAF.

Q. Was he present at any meetings at which the Canadian delegation was not present discussing this matter?

A. I do not recall.

Q. It is my information, sir, that Mr. Holt advised the Canadian delegation, and my information is that included Mr. Pound, and Mr. Francis, Dr. Stanish, and Ms. Letheren, that the steroid profile, the endogenous steroid profile, was the crucial element which caused the Medical Commission to make its decision in favour of a positive test. Is that incorrect sir?

A. This is incorrect.

Q. Was there any discussion by the Medical Commission as to looking for Stanozolol itself in the sample in order to deal in any way with the conspiracy or

sabotage theory?

A. Not at that time because out of the metabolites, which were present in the urine, the ingestion was proved. And a second, there was at the length or lengthy period of time discussed the security question. So, there was no idea to follow up this theory.

Q. You told us this morning that you introduced the endogenous steroid profile to counter this argument only. The argument relating to security and inadvertent --

A. Yes, elaboration.

Q. -- ingestion. If it was serious enough, sir, to merit that approach, would it not have been serious enough to investigate whether the molecules of Stanozolol were present in the sample in a sufficient concentration to either confirm or deny or to be consistent or be flatly inconsistent with that kind of a theory?

A. I must tell you that whenever you apply a certain substance and they will -- or this substance will be metabolized to a large extent and will produce a lot of metabolites. These metabolites are in a certain range. And when you will find one or two metabolites, you can naturally extend it and can ask for the identification or the -- yes, the determination of the third and the

fourth and the fifth and the sixth and the seventh. And you can extend this to eternity.

Our rule says parent compound or metabolite, metabolites.

5 Q. Can you tell us, sir, what the concentration of Stanozolol was found to be in February when the sample was retested?

A. Roughly, yes.

Q. Could you give us that, please?

10 A. Eighty nanogram per millilitre.

Q. Eighty?

A. Eighty nanogram per millilitre.

15 Q. Now, would you be able to translate that into teaspoons of sugar and gallons of water or not for us, or not?

A. Sorry, it is difficult for me. I have no calculator here.

Q. That's unfair.

20 A. Eighty nanograms, this means nanogram is one -- maybe 10 minus 9 grams.

Q. One to the 10 to the minus 9 -- 10 to the minus 9 power?

A. Ten to the minus 9.

25 Q. It would not have been any less than that in October, I take it, or in September when the test

was originally made or the sample was originally given?

A. Not substantially.

Q. It could have been more?

A. When you assume, as you did before, a

5 deterioration, it would be logical to expect a higher
concentration there. But as I explained to you, we have a
lot of experience in storing urine samples, measuring in
intervals the endogenous steroids and also metabolites of
anabolic steroids. We have observed such deteriorations
10 only under the influence of microorganism or whatever it
may be.

Q. Is there any way of knowing whether
that process had occurred in relation to this sample?

A. This sample was stored in Seoul,
15 deepfreezed, was shipped and deepfreeze in Cologne. So,
the probability of the interference of microorganism is
like zero or close to zero.

Q. Now, Dr. Dugal yesterday was speaking
to us about the half life. And I realize this is an
20 approximate and possibility even unscientific way of
looking at it. The half life of steroids in relation to
their retrospectivity; in other words how long it takes in
the average person for half the substance to metabolize.

Can you -- do you have any idea what the
25 half life by that definition of Stanozolol would be?

A. It is difficult to say this. I can give some examples about anecdotal reports we have had in connection with positive cases of Stanozolol, but we have not made excretion studies with volunteers.

5 THE COMMISSIONER: Would it depend on the -- not only the amount being taken, but the extended time over which it is being taken?

THE WITNESS: Yes. In this case --

10 THE COMMISSIONER: If you took it over a lengthy period of time it is liable to stay in your system longer?

THE WITNESS: And especially in this case crystal suspension was injected, the milky white stuff, this is --

15 Q. Yes, I have heard of it.

A. The correct description from a pharmaceutical point of view is crystal suspension. And the half life of such an application is hard to predict.

20 I feel even that people working in this area will not even accept the term "half life" for such a preparation, because this is not what we normally understand on a half life. We inject or we take a substance and it is out within some hours.

25 Here the determining factor for the retrospectivity or for the clearance time will be the

dissolution of the crystal -- of the crystals of the suspension in the muscle.

Q. I see. It wouldn't have been possible, I take it, for the Seoul laboratory to test it for Stanazolol?

A. When they had changed their methodology, yes, but you cannot change complete methodology within a few weeks or days and --

THE COMMISSIONER: I am sorry, what was the question?

MR. PRATT: I was asking whether it would have been possible for the Seoul laboratory to test for Stanazolol as opposed to its metabolites.

THE COMMISSIONER: I see.

THE WITNESS: Theoretically, yes; practically, no.

MR. PRATT:

Q. So, that it wasn't set up -- what I am trying to suggest, sir, is that it would have been preferable all around in this case if the laboratory had been able to determine whether Stanazolol in its intact form were present in the urine, at what concentration, and then some assessment could have been made of the consistency of that data with the theory that was

presented to you.

Dr. Dugal told us about the vase and the sling shot. You are looking only for the fragments, I take it, in Seoul. You are not looking for vase itself in this instance?

A. No. This is an example which is not -- should not be used here. This is an example which he brought in connection to explain the function of a mass spectrometer.

Q. But the function of the mass spectrometer, I understood it, unless I missed the point entirely, was that it could detect metabolites which are analogous to the fragments, and by inference and by comparing them with data banks of known chemical composition, it could be inferred what had originally been there?

A. This was done.

Q. Yes.

A. The Seoul laboratory identified metabolites one and two.

Q. Precisely. And you had identified some further ones in Cologne as you have told us.

A. Okay. But this was another issue. In Cologne we showed that no Furazabol was present. At that time an issue of major importance in the discussion.

Q. I am simply suggesting, sir, that in any case where it is alleged that an athlete, and I take it this is very frequently alleged and we have heard this before, an athlete alleges that something was slipped in his water bottle or rubbed into his muscle every time -- just about every time an athlete tests positive.

I am suggesting, sir, that a testing process which is not geared to determine the validity of those types of arguments by looking for the intact substance rather than the breakdown products of the metabolites is a flawed system.

A. This is your interpretation which is not correct. This interpretation does not consider that the metabolites will appear in urine only when the parent compound has been applied.

So, in the system you will find first the parent compound and then you will find the metabolites. And in a lot of cases, you will not find any parent compound at all. I can give you a lot of examples to --

THE COMMISSIONER: But you still find a metabolite, though?.

THE WITNESS: Only metabolites are detected.

MR. PRATT:

Q. I assume that the reason for the

approach is that most athletes are now sufficiently sophisticated that they are not going to be consuming the parent product close enough to the event that that material will be found in their urine.

5 On the contrary, the only people who will have the parent compound in their urine are those who have either out of stupidity, inadvertence, or sabotage, ingested something much closer to the competition and the giving of the sample than they should have done it?

10 A. How can you come to this conclusion when it was testified here that Stanozolol in a water solution, this means a crystal suspension, was applied four weeks prior.

15 I can only repeat the analytical results of Seoul are in all aspects consistent with the claims which have been made here before the Commission of Inquiry.

20 Q. I am simply suggesting, sir, that there is something more that could have been done in Seoul, other data that the Medical Commission could have looked at, it wasn't done. What the result would have been we can't say now.

 But, in any event, I will move along.

 A. I can tell you what would have been the result: the same.

25 Q. All right, thank you. Now, you have

told us that you have, you or your laboratory, have been reviewing the 1100 endogenous steroid profiles from the male athletes who were tested in the Seoul Games?

A. Once more please.

5 Q. You have told us that there is currently an assessment going on by your laboratory of the endogenous steroid profile which are the part of the results of the doping tests of the Seoul Games, and, in fact, they are the tests of all the male athletes who were
10 tested?

A. Yes.

Q. Now, have you personally, sir, reviewed those endogenous steroid profiles?

A. What does this mean "reviewed"?

15 THE COMMISSIONER: Have you examined them? Have you seen the printouts, whatever you call them?

THE WITNESS: I have seen maybe 60 or 70 of 80 percent of the endogenous steroid profiles when they came out of the machine there. But --

20 THE COMMISSIONER: You --

THE WITNESS: But with review, no, because we are reviewing the steroid profile. We are making this statistical elaboration on, as I explained it today, on a reduced data from the steroid profiles.

25 MR. PRATT: I see.

THE COMMISSIONER: When you were in Seoul,
did you look at them all?

THE WITNESS: No, not all.

THE COMMISSIONER: For the endocrine
5 profile?

THE WITNESS: But on a lot of them, you
know.

THE COMMISSIONER: Did you any sixes
around?

10 THE WITNESS: Pardon?

THE COMMISSIONER: Did you see any sixes
around? Any of those sixes and over in Seoul?

THE WITNESS: No. As I explained to you,
what was presented or what is reported in the report, yes,
15 no others.

THE COMMISSIONER: Just the four?

THE WITNESS: Pardon? No, two.

THE COMMISSIONER: Two more. You are
talking about Seoul now?

20 THE WITNESS: Seoul, yes.

THE COMMISSIONER: All right.

MR. PRATT:

Q. This morning, sir, you, in a number of
25 occasions, you demonstrated your ability to assess from a

glance at an endogenous steroid profile your ability to determine whether or not there was the influence of anabolic steroids. And you will recall the two Ben Johnson profiles and the profiles from a number of German, I believe, they were body builders.

And you also looked at the profiles of the cyclists and you made conclusions based on their non-use of anabolic steroids.

I suggest to you, sir, that you are in a position to be able today to tell us whether the 1,100 endogenous steroid profiles create suspicion or probability of anabolic steroid use by those 1,100 athletes?

A. I am not in the position to disclose now figures.

Q. You have made that that assessment?

A. No. The evaluation of the data is not yet completed. And it will take some weeks or even months.

Q. I see. Well, the statistical, the truly statistical assessment of the data have not been completed, I understand that.

A. Okay. You have to calculate normal ranges and you have to compare the data from Seoul taking into account the measured parameters with these normal

values. You have calculated out of a larger data base.
This takes time.

Q. What I took from your evidence earlier,
sir, was that if those 1,100 profiles were reduced to the
5 graphic form you have been showing us, you would be in a
position to say, "well, I am a little bit suspicious about
X number; I am highly suspicious of another number; I am
convinced that this number indicate long-term steroid use
or anabolic steroid use" and so on.

10 You would be able in a subjective and in an
exact way, but in a reliable way, I take it, because of
your expertise to be able to make that assessment?

A. You make the correct point. Such an
approach is a subjective one and as a scientist I do
15 not --

THE COMMISSIONER: You had no difficulty
here explaining it just by looking at the lines.

THE WITNESS: Okay. This is --

THE COMMISSIONER: You said you saw Ben
20 Johnson's, you saw the body builders, you saw the --

THE WITNESS: Okay. But this is far away
from statistical scientific evaluation of data.

THE COMMISSIONER: Did you look at any
other ones in the manner you looked at Johnson's, any of
25 the other Olympic championships to see their profile?

THE WITNESS: You must accept that we did not look in any other champions. We did at the best look on code numbers.

THE COMMISSIONER: On what?

5 THE WITNESS: On code numbers.

THE COMMISSIONER: Code numbers, I see.

MR. PRATT:

10 Q. I think you told us these 1,100 profiles you have only in a unanimous way, you don't know who they are, you just know the numbers?

A. Yes, correct.

15 Q. How was it, sir, that you obtained the B sample from Mr. Johnson's test in Zurich in August of 1988?

A. I thought I had explained this in an understandable way. If I shall repeat this.

20 There was after Seoul, as you are well aware, a lot of rumors. And one of the allegation -- one of the allegations was that the Magglingen Laboratory had missed a positive test due to lack insensitivity. The IAAF went to Magglingen asking for copies of the chromatograms.

25 Q. Sorry, is the laboratory that's operated by --

THE COMMISSIONER: In Switzerland.

THE WITNESS: In Switzerland.

MR. PRATT: In Switzerland, yes.

THE WITNESS: Magglingen, Switzerland.

5 MR. PRATT: Yes, thank you.

THE WITNESS: And then I was asked by the
head of the laboratory to recheck the sample under our
conditions.

10 MR. PRATT:

Q. How did the head of the laboratory know
that this was Mr. Johnson's sample?

A. The code number was disclosed after
Seoul by IAAF.

15 Q. Why was that done?

A. In answering to the rumours saying
"there was a positive sample, they didn't find anything",
what is going on.

20 Q. If the IAAF wanted to find the
identities of the other athletes who were tested at that
meet, I take it then they would have the means to do it?

A. Not to my knowledge.

Q. Why would that be?

A. Pardon?

25 Q. Why would they not?

A. I have no information how this decision was made. I was involved purely at this stage --

THE COMMISSIONER: I am sorry, you said there is an allegation made that at Zurich there had not -- that there had been a positive test not disclosed; is that the allegation?

THE WITNESS: No, no, there were -- there have been also made these allegations, I am not aware of this.

THE COMMISSIONER: I am sorry, what was the allegation you were investigating?

THE WITNESS: Pardon?

THE COMMISSIONER: There was a complaint made about the Swiss lab by somebody or an allegation about that?

THE WITNESS: Yes, there was mainly the complaints that the sensitivity of the analytical methods they have used --

THE COMMISSIONER: In Switzerland.

THE WITNESS: -- they are not the high enough in Switzerland.

THE COMMISSIONER: Yes, I gather about that.

THE WITNESS: So, they exclude this. This was after the investigation IAAF had made on the

laboratory's result, that the head of laboratory came to me and said "please, we want to stop this, re-analyze the sample so that we can make use, appropriate use of this results."

5

THE COMMISSIONER: All right.

10

15

20

25

Q. So clearly then, sir, the IAAF would have it in their power, in an IAAF meet to go to a laboratory and ask for the disclosure of the identity of any sample?

5 A. Once more? The IAAF...

Q. Yes. Maybe I'll come at it another way. Perhaps I should move away from this meet because you're not here on behalf of the IAAF; you're here on behalf of the IOC. In an IOC meet such as the Olympic Games, who holds the key which identifies the athlete with the sample?

10

A. I can refer only to our dope control procedure. It is the Chairman of the Medical Commission of the IOC, Prince de Merode, nobody else.

15 Q. So only he in an IOC meet could ask for or would be able to determine that sample such and such is athlete so and so?

A. Yes, he will open the envelopes -- this is the standard expression in our Commission -- only when data has been produced suggesting that a banned substance has been identified in a laboratory. This is the rule.

20

Q. But that data, whether or not it's used, it exists, and I take it it isn't destroyed?

25 A. Which data?

Q. The data which would provide the key to the samples.

A. The key is always destroyed when the games have been finished.

5 Q. Well in the case of Zurich, then, do you have any idea why the key wasn't destroyed when the games were finished? Mr. Johnson tested negative.

A. I cannot comment on this. There are a lot of international federations, as well as national
10 federations. Filing the keys for a certain period of time to be able to go back, as it was here in this case, as well as the laboratories normally store the residual volumes of the A sample and the residual volumes of the B sample also for a certain period of time. In the GLP, we
15 ask, for example, to store the B samples for three months after the opening of the A sample. I think I'm correct what I am citing here.

Q. So it wasn't a surprise to you that the B sample from Zurich still existed?

20 A. No. In Zurich, the meeting was held on the 17th of August '88. It was the 26th of September that it was worldwide known, and I suggested that the General Secretary of IAAF or Professor Ljungqvist asked in the office in London, "Please, go back to the Zurich meet.
25 This and that happened. We want to know how the

chromatograms of the negative samples are looking like."

I can only suggest. Please ask IAAF.

Q. So what you are saying is that it's quite possible in relation to any IAAF meet, the evidence
5 continues to exist to identify the samples or the tests, but in an IOC meet, it doesn't because it's destroyed at the end of the meet?

A. It's destroyed. After a certain period of time, the IAAF or the international federations, they
10 have their own dope control procedures and their own methodology to follow it up.

Q. Do you know, sir, for the Pan-American Games in 1983 and 1987 whether the key, as I've been using the term, to the samples exists?

15 THE COMMISSIONER: I'm sorry, the key to the sample is the code number?

MR. PRATT: The list of names next to code numbers.

THE COMMISSIONER: The code number, yes.

20 THE WITNESS: This is a matter of -- I cannot answer this question. This is a matter of the Medical Commission of ODEPA (phon). I cannot answer for the ODEPA Medical Commission. I suggested that they be destroyed for a longer period of time.

25

MR. PRATT:

Q. But it would appear that it's quite possible that an example such as the Zurich meet in 1988 that any other athletes who were tested then could be identified today?

A. Ask IAAF. I don't know.

Q. But you don't know that?

A. No. I'm not involved in this process, and I'm not involved in filing the data coming in from different meets in the IAAF secretariat. I'm not aware of how this is done.

Q. One more area. I'd like to go back to Seoul just for a moment. You explained the roles of Dr. Hoepfner and Dr. Ljungqvist in the doping control area at the track and field site. Are you aware, sir, that there has been evidence here, and I think suggestions elsewhere, that both of these gentlemen took photographs of that site immediately after the 100 meter final?

A. I was told so, but I'm not aware of this problem, or if this is any problem.

Q. But did you ever request either of those gentlemen, whether or not they took photographs, and if so, to provide them to you?

A. This possibility of taking photographs was discussed at a lengthy period in Seoul at the meeting

of the Medical Commission, but I do not recall what was the outcome of this.

Q. But as a member of the two Medical Commissions, the IAAF, in that capacity, you would have had the right presumably to ask Dr. Hoeppe and in your other capacity as part of the Medical Commission of the IOC, you could have asked the same of Dr. Ljungqvist?

A. I will do it the next time I meet both gentlemen.

Q. Maybe something will come out of it, then.

A. But I do not see how this forms a breach of the positive results.

THE COMMISSIONER: Well, you just answer the questions and Mr. Pratt will explain it some other time.

MR. PRATT:

Q. I will try to wrap up as soon as possible. I know you have a plane to catch, and I know what the traffic is like in this city.

You've made a distinction from the time between observations that you've made as a scientist and observations that you've made as a member of the IOC Medical Commission applying a set of rules to testing?

A. Correct.

Q. Now, we've discussed this afternoon and earlier today a number of instances where the initial testing of the A sample gave rise to some, at the very least, some serious suspicion that a banned substance had been taken, and yet it was decided not to proceed with the B sample on the basis of what I would call, and you can dispute it, a "judgment call"; is that fair?

A. It's difficult for me to answer this question because I'm not very familiar with the expression "judgment call" and what this means. But going back to the examples which have been cited, the ephedrines, it is maybe a judgment but a judgment not of one person, of the whole Commission to come to the decision this is maybe inadvertent use over-the-counter drug. So the decision will be made not to follow up. I do not dispute this. It is I believe the right of such an organization to come to a conclusion, in this case to a conclusion in favour of an athlete.

Q. Let's go to the additional example of the two athletes who had elevated testosterone levels in Seoul in 1988. Now are you familiar enough with the two instances, sir, to tell us how close they were to six?

A. I have the figures not in my mind.

Q. I see. But would part of the range

including the standard deviation have been greater than 6.

A. No, lower. They got the benefit of the doubt.

Q. As I understand it, if it was 5.8 with
5 a standard deviation of say .5, a part of the standard deviation would have carried it over the 6, but yet it would have been under 6?

A. I have to look into the data to give the exact answer.

10 Q. Clearly, I suggest to you, sir, that the ratio of 6 to 1, there is no magic dividing line at 6, that it's a matter of convenience, and as Mr. Armstrong suggested and you agreed, it's set at that level to ensure that the innocent aren't needlessly caught, like many
15 rules of criminal law?

A. Okay. You make exactly the point. It's very difficult, you know, to draw a line in these kinds of determinations and to say 6.00, not taking into account all the other factors from an analytical point of
20 view and from a scientific point of view you have to consider. Therefore, the margin --

Q. What I'd like to ask you, sir, is whether -- as I understand it, as a decision maker, a decision is made in that instance not to punish the person
25 who has tested in that way. What I'd like to ask you,

sir, is as a scientist, if you are a member of the jury, in your own judgment, are those two athletes, with some degree of certainty, guilty of using banned substances?

5 A. I would be fairly sure, but this is a difference you pointed out between scientists and in this case members of a commission. As a scientist, and there will be a lot of proof of this. The normal range is calculated to 95 percent, and going back into clinical chemistry, this is a different issue. If you are dealing
10 from a scientific point with certain observations you have, or if we have the analytical data, the fate of an athlete is connected. This is quite a large difference if you are doing science or if you are providing data as the basis of a sanction.

15 Q. As a scientist, I take it you would have a similar view regarding the two athletes we've referred to in the 1983 world championships in Helsinki?

A. No, I must tell you that I've seen the data the laboratory had produced later, and I would not
20 have come even at the time of the world championships in Finland, in Helsinki, that these are results sufficiently elaborated to go on, to go to decode the sample, inform the nation concerned and proceed to the B sample.

MR. PRATT: I think in fairness to the
25 witness, this may be a good place to end.

THE COMMISSIONER: Very well, Mr. Pratt.

Thank you very much. We appreciate your cooperation. Any other questions you are going to review with Mr. Barber and Mr. Morrow.

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Thank you very much for your assistance, Professor Donike. Have a good flight back.

THE COMMISSIONER: Tomorrow morning until 10 o'clock.

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--- Hearing adjourned until Friday, August 4, at 10:00 a.m.

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